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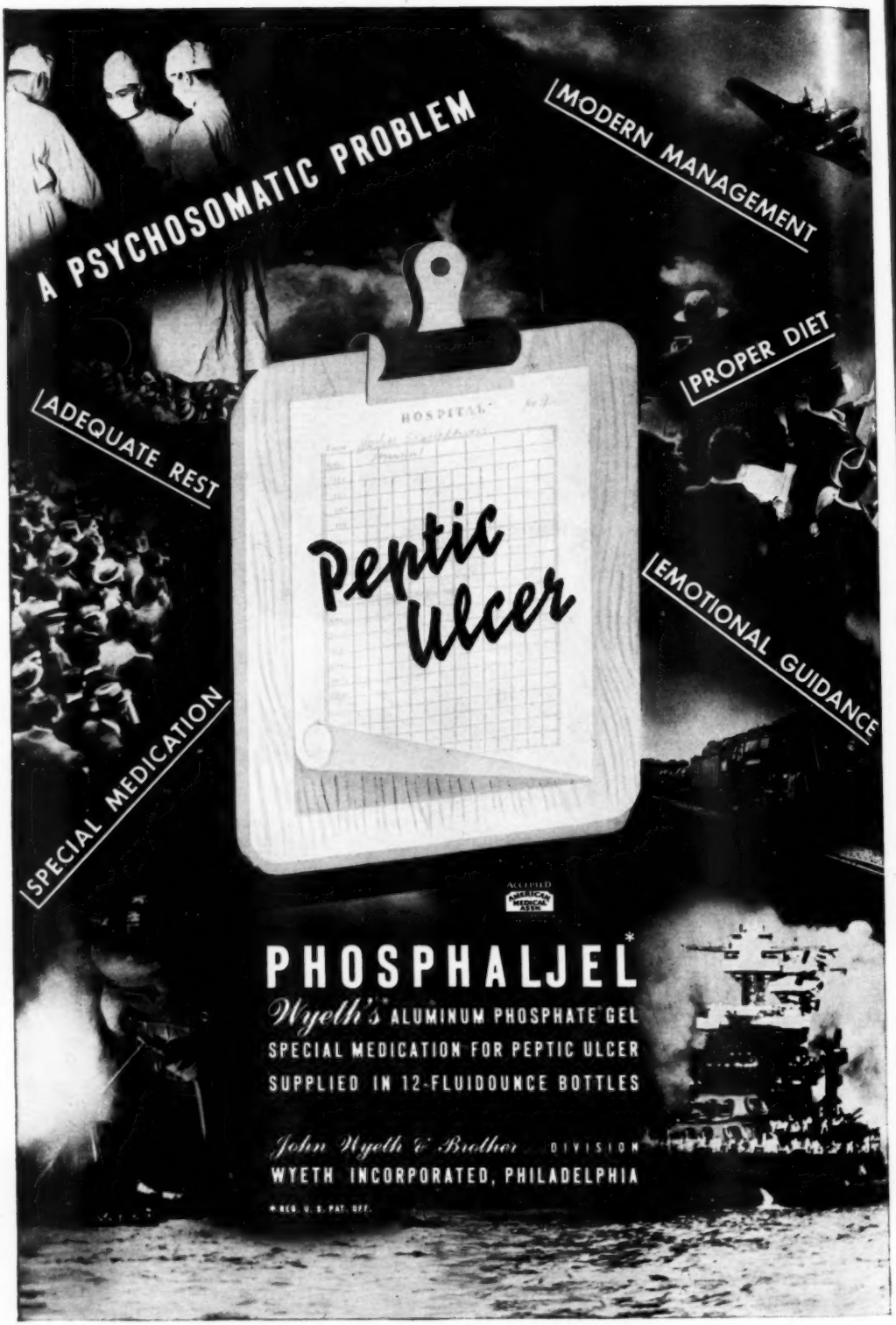
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POTASSIUM THIOCYANATE IN HYPERTENSION

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and
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IT must be apparent to most of us that the methods of treatment of hypertension available to us today are unsatisfactory as far as reduction in blood pressure is concerned. Treatment medically is much the same as that in use twenty-five years ago[17,33] and the failure to change is certainly not due to its efficiency. Time after time we see the diagnosis of hypertension made and the notation immediately thereafter "no cardiac decompensation, no therapy indicated." The average patient with high blood pressure is told to go home and "take it easy." If he is at all apprehensive or has some symptoms of hypertension, he is given large amounts of phenobarital to help him do so. We then sit back and await the sequellae of the condition—cerebral accident in 19 per cent, renal failure in 9 per cent, myocardial failure and coronary disease in 61 per cent.[6] If the patient develops cardiac failure, we eagerly digitalize him realizing that here at least, we have a condition in which adequate therapy will be of unquestioned benefit. If a cerebral accident ensues, we assure the patient or his relatives that if he recovers from the initial attack, he will, no doubt, regain a large proportion of the faculties he has lost—and he will then surely "take it easier." We do not believe this is too harsh a résumé of the present medical treatment of high blood pressure in the average case.

From the Department of Medicine, University of Minnesota. Read before General Staff Meeting, University of Minnesota, April 9, 1943.

Prevelance of Hypertension and Prognosis

Another factor that needs emphasis is that hypertension is a common and a serious condition. Dr. Wetherby, in a study of 5,540 patients in our own department, gives what seems to me, some very interesting and even startling figures (Table I). Between the ages of 40 to 49, 23.36 per cent of the men and 55.67 per cent of the women had systolic blood pressure above 140 and 29.99 per cent of men and 40.26 per cent of women had a diastolic blood pressure of above 90 mm. of mercury. In a very recent article, Masters[35] states that 41 per cent of the male population of the United States and 51 per cent of the female population of the United States over forty years of age have a blood pressure of 150/90 or over.

The mortality from hypertension has been estimated in the United States at from 250,000 to 375,000 annually.[4] About one-fourth of all deaths past fifty years of life is referrable to hypertension[18]—two to three times the number of cancer deaths. Keith, Wagener, and Barker[27] have shown that the mortality varies from 30 to 98 per cent in a period of four years depending on the degree of hypertension. Among persons with a systolic blood pressure of 170 mm. of mercury, insurance statistics show a relation of actual to expected mortality of 219.6 to 100; with a systolic blood pressure of 200 the actual mortality is to the expected as 827.5 is to 100.[2,20] Many physicians are misled by the oc-

TABLE I. PERCENTAGE OF CASES ABOVE CERTAIN BLOOD PRESSURE LEVELS FOR MEN AND WOMEN IN THE TOTAL OUTPATIENT GROUP

Percentage Over	15-19 Years		20-29 Years		30-39 Years		40-49 Years		50-59 Years		60-69 Years		70 Years and Over	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Systolic Blood Pressure														
140 mm.	4.64	6.31	9.86	8.48	14.74	18.21	23.36	55.67	39.73	65.16	57.47	75.95	72.22	89.39
150 mm.	1.48	1.05	2.94	3.01	4.84	10.33	12.38	40.89	26.31	50.50	42.88	66.82	61.90	78.78
160 mm.	0.74	0.34	1.26	1.10	2.61	5.87	7.12	32.24	18.63	38.03	34.38	56.45	46.82	68.17
180 mm.			0.21	0.41	1.40	3.07	2.99	21.55	8.50	19.22	15.36	34.04	28.56	42.40
200 mm.					0.40	1.30	1.84	15.42	4.66	9.52	7.68	13.71	9.52	24.21
Diastolic Blood Pressure														
90 mm.	5.18	7.36	16.44	15.60	24.85	24.03	29.99	40.26	38.34	50.70	46.15	62.66	46.83	69.73
100 mm.	1.48	1.05	2.10	1.92	4.85	6.09	8.48	16.83	16.70	24.17	27.12	34.45	30.96	45.48

casional patient that survives many years, for while hypertension is compatible with longevity[41] it is not conducive to it. Hypertension is a serious disease and fatal within a relatively short period of time.

It has at times been stated that hypertension per se may have little influence on the development of arteriosclerosis [13] and that the injurious effect on the vascular system may be due to a hypothetical noxious substance which causes hypertension; but most of us will agree, we believe, that "all pathologic changes in the disease can reasonably be explained as resulting directly from mechanical effects of a persistent elevated arterial tension acting on a vulnerable vascular system."[12]

Level of Hypertension

There has been a great deal of diversity of opinion regarding the exact level above which we should consider hypertension exists. More recently, general opinion has tended to place the normal blood pressure at lower levels. Whereas thirty years ago, Janeway and others regarded 160 systolic and 100 diastolic as hypertension, we now regard 140 and 90 as more nearly the true levels; and many would place it lower. The old rule of thumb of 100 plus the age is grossly inaccurate and if cases of hypertension are excluded, it would seem that blood pressure rises very little with advancing age.[47,42] The study made in 1939 by the Joint Committee of the Association of Life Insurance Directors and Actuarial Society of America [1] shows that levels above 140 systolic and 90 diastolic are abnormal at any age. For persons over forty, systolic blood pressure 35 to 44 mm. in excess increases expected mortality two and one-half times; and increased mortality is in direct proportion to the increased blood pressure. It would be reasonable to assume that even a moderate persistent reduction should retard degenerative processes.

Hypotensive Drugs

It is with these facts in mind that Dr. M. Wetherby and I decided to try some of the so-called hypotensive drugs in a hypertension clinic. We realized as do you, that many men have agreed with Mosenthal[35] when he recently summarized the effects of common methods of medical treatment of human hypertension with the statement "there are no means by which an elevated blood pressure can be appreciably and persistently lowered." We also realized, however, that some very capable observers have at times reported encouraging results with some drugs—the list is long—among them pentothal sodium, pentobarital sodium, choralosane, nitrites, mannitol hexanitrate, viscum album, allium sativum (garlic extract), extract of watermelon seed, sodium bromide, veratrum viride, acetyl choline, choline chloride, sodium chloride, nicotinic acid,

Biotin (vitamin H), vitamin A, and the cyanates.[36]

Various diets have been tried but with no apparent effect. Organotherapy in the form of pancreatic, liver, and, of course, kidney extract has been used. The very multiplicity of therapy speaks for itself; but most encouraging reports have come of the use of the cyanates and most recently, renal extract. In our present series, we have used vitamin A in twenty cases and potassium thiocyanate in seventy cases.

Vitamin A in the Treatment of Hypertension

At times hypovitaminosis of several of the vitamins has been reported as a possible factor in the causation of hypertension. There has been very little substantiating evidence but vast quantities of vitamins have been sold on this basis. Juan Govea-Peña and M. Villaverde[23,24,25] of Cuba have recently reported on the use of Vitamin A in large doses in hypertension. In our series, however, vitamin A in doses up to 200,000 international units daily for two weeks followed by 100,000 international units daily for six to twelve weeks did not have any significant effect on the blood pressure determination of these twenty hypertensive patients.[8]

Potassium Thiocyanate

Sulphocyanic acid is a synonym of thiocyanic acid, rhodan acid, sulphocyanates, sulphacyanids, thiocyanates, thiocyanids, rhodanates or rhodanids. The acid is unstable but the compounds are stable. It forms a large number of salts and has chemical relationship with various complex organic compounds especially the purine group. The alkaline salts, potassium, sodium, ammonium are most usually used. They are white crystalline substances saline in taste and very soluble in water and alcohol. Solutions turn to brilliant dark red by the addition of excess mercuric chloride. These changes do not take place if the mixture is markedly alkaline. This characteristic forms a very sensitive test—the reaction being well noted even in 1 to 100,000 solution of the cyanates. Normal saliva yields this reaction as does gastric juice and tears. The mode of fumation may be the result of katabolism of sulphur-containing proteins. The urine of persons taking cyanates turns a dark red on addition of ferric chloride which is only slightly different from the cherry red of diacetic acid.

Pharmacology of the Cyanates

Claude Bernard[7] in 1857 first reported the pharmacological observations on these drugs. Ingested cyanates are excreted by the kidneys very slowly. The urine does not become negative until two to three weeks after stopping the drug, suggesting accumulation in the system. They are also excreted in the saliva where they persist after the urine is free. The cyanates pass through unchanged and are not transformed in deadly hydrocyanic acid. Prolonged administration in animals of sub-lethal doses produces no harmful effects. In large doses, they are a powerful poison acting directly on the muscle, and in very large doses cause immediate cessation of heart action. In doses not immediately fatal, they cause marked diarrhea and intense stimulation of the motor cells of the cord production of tetanus and corrosion and hemorrhage of the gastric mucosa. The effect is due to the sulphonic radical and the lethal dose in a 70 kg. man would be 15 to 30 gm. at one dose though this varies greatly.

Potassium Thiocyanate in Hypertension

Pauli[40] in 1903, noted that blood pressure was reduced with use of cyanates. He also remarked about the sedative action of the drug on pain, and its possible action of removing calcareous deposits in arteries. LeRoy,[30] in 1908, thought the cyanates had a solvent and eliminative action on the earthly salts and advanced their use on this basis in degenerative conditions for eliminating calcareous deposits. Since that time many investigators have reported on the use of the cyanates in hypertension (Table II). A great advance in the treatment of hypertension with cyanates is the determination of cyanate concentration in the blood. Studies show a great individual variation in the absorption of the drug.[48] In 1929, the following simple technique as described by Schreiber[45] for determination of concentration of cyanates in the blood was offered so that adequate control of dosage could be obtained.

Pour 5 c.c. of 10 per cent trichlorocetic acid in a test tube, add 5 c.c. serum or plasma. Shake. Allow to stand ten minutes, filter, measure 5 c.c. filtrate, add 1 c.c. 10 per cent ferric nitrate. Mix and read in a colorimeter with the standard solution set at 20 mm. choosing that standard which most nearly matches the unknown.

TABLE II—CLINICAL REPORTS

Author	Average Dose	No. of Cases	Results
Nichols[34]	5 grains three times daily	12	Effective in reducing blood pressure though with unpleasant side effects
Gager[21]	1½ grains three times daily	35	Blood pressure reduced in 32
Smith and Rudolf[46]	2½ grains twice daily to 5 grains three times daily	72	Response satisfactory in 61 cases
Palmer, Silver and White[35]	1½ grains three times daily	59	42% of the results were favorable
Logefeil[28]	5 grains three times daily	24	Blood pressure reduced in 21 cases
Fineberg[19]	1½ to 5 grains three times daily	58	37% of the cases showed a decline in blood pressure with smaller dose; with larger dose, 57% exhibited decline in blood pressure but with toxic signs
Maguire[29]	1½ grains three times daily	4	Blood pressure lowered and condition improved in all four
Borg[10]	2 to 10 grains three times daily	24	22 patients showed a decrease in systolic pressure but toxicity common
Saleeby[44]	1½ grains three times daily	88	Satisfactory results observed in 90% of cases
Ayman[3]	1½ to 3 grains three to five times daily	26	Large doses produced marked decreases in blood pressure but toxicity noted; small doses ineffective
Goldring and Chasis[22]	2½ to 25 grains daily	50	Effective in 31% of the patients but larger doses usually give toxic effects
Palmer[36]	1½ to 5 grains once to three times daily	35	Blood pressure reduced in 31%
Bolotin[9]	1½ to 5 grains three times daily	99	Improvement in 68.8% of women and 23.5% of men
Barker[5]	5 grains daily	246	Over a ten-year period roughly 47½% have responded to thiocyanate therapy. 76% benefited
Griffith and Lindauer[23]	5 to 15 grains daily	16	Improvement in 10 cases
Massie, Ethridge, & O'Hare[31]	3 to 12 grains daily	14	Lowering of blood pressure in every case; 12 patients reported marked symptomatic improvement
Doles[14]	2 to 7½ grains daily	300	Blood pressure lowered only in cases with macrocytosis
Doles[15]	2 to 7½ grains daily	10	Patients having macrocytosis showed satisfactory falls in blood pressure
Robinson and O'Hare[43]	3 grains two to three times daily	75	Average drops of 40 mm. systolic and 20 mm. diastolic occurred in 63% of the patients
Kurtz, Shapiro, and Mills[26]	3 to 21 grains daily	50	63% subjective improvement; 78% show reduction in blood pressure
William and William[49]	6 grains daily	6	6 fatal cases reported. Blood cyanate level of 15 to 20 mg. is critical

Barker, reporting on the use of potassium thiocyanate over a period of ten years, states a blood cyanate concentration of 8 to 12 mg. per 100 c.c. of blood will give the best sustained symptomatic relief and improvement in blood pressure without endangering the patient.[5]

Caviness, Bell and Satterfield[11] in 1941 using the Evelyn Photo-Electric Colorimeter with filter of wave length 440 mu and some modifications in technique report very interesting though as yet unconfirmed findings. Using 241 persons in two institutions under controlled conditions of diet, activity and environment, they found blood concentrations of sulphocyanates in normal individuals who had not taken any drug to be 50,000 times that of the nitrites; and to vary from 0.31 mg. to 2.55 mg. per 100 c.c. of blood. The average level was 1.20 mg. per cent. This concentration did not vary from week to week in twenty-nine persons on whom this was done. The mean variation was 0.14 mg. per cent with initial concentration from .36 mg. to 2.04 mg. per cent. On further investigation, they also found that the blood sulphocyanates, as they tested for them, varied in inverse proportion to the blood pressure. They concluded that the sulphocyanates are the most important natural depressor substances in the blood. If confirmed this would, of course, be extremely important.

There have been many reports on the toxicity of the cyanates, most of them before adequate control was used. The Council of Therapy of the American Medical Association in 1929 condemned the use of the cyanates and again in 1940 repeated that their use was dangerous.[16] The toxic symptoms are reported as weakness, depression, aphasia, anorexia, disorientation, anemia, dermatitis, and even death.[3,22,49] In almost all serious cases the blood cyanate level was allowed to rise above 12 mg. per cent or was not observed.

The daily dose given by the many investigators has varied but usually began with 1.5 to 6 grains with a gradual increase in dosage until either there was a satisfactory fall in blood pressure, toxicity developed, or no results were obtained in doses as high as twenty-five grains daily (Table II).

As shown in Table II, the results have varied. Thus Nichols reports the drug effective but with unpleasant toxic effects in doses of 15 grains a day. Gager reports reduced blood pressure in thirty-two out of forty-five cases on a daily dose of 4.5 grains. Smith and Rudolf show a satisfactory response in sixty-one out of seventy-two cases with a dosage of 5 to 15 grains daily. Logefeil reports twenty-one out of twenty-four cases of hypertension as having blood pressure reduced. Fineberg reports 37 per cent of cases showing a decline in blood pressure with 1.5 grains of potassium thiocyanate three times a day and 57 per cent with doses up to 15 grains a day but the larger doses gave toxic effects. Borg's work showed twenty-two of twenty-four patients with a lowered blood pressure on 2 to 10 grains three times a day but toxicity was frequent. Saleeby reports 90 per cent satisfactory results in eighty-eight patients. Ayman concluded in a study of twenty-six cases that large doses (15 grains daily) produced marked decrease in blood pressure but toxicity resulted; while small doses were not effective. Barker gives the most comprehensive and prolonged study and he reports 246 cases observed over a period of ten years. Of these, 47.5 per cent have responded to thiocyanate therapy while 76 per cent have benefited if he includes those with relief of symptoms and only minor reduction in blood pressure. William and William report on six fatal cases with a dosage of 6 grains daily but with a cyanate level above 15 mg. per 100 c.c. of blood. These authors have judged satisfactory results as being a reduction of 10 to 15 per cent in average systolic and diastolic blood pressure readings or an average drop in diastolic blood pressure of 20 mm. of mercury and an average drop in systolic blood pressure of 40 mm. of mercury.

TABLE III. PATIENTS RECEIVING POTASSIUM THIOCYANATE

Number of Patients	70
Males	18
Females	52
Age	18 to 78 years
Period of known hypertension	2 months to 12 years
Average period of known hypertension	5.4 years

Seventy cases of hypertension were treated with potassium thiocyanate for periods ranging from three to eighteen months. They were all ambulatory patients. As shown in Table III, the ages varied from eighteen to seventy-eight years. There were eighteen males and fifty-two females. The known period of hypertension was two months to twelve years with an average of 5.4

TABLE IV. RESULTS OF TREATMENT WITH POTASSIUM THIOCYANATE

Number of patients	70
Number of patients with symptoms of hypertension	58
Number of patients improved symptomatically	43
Number of patients who developed a rash	2
Number of patients with diarrhea and nausea	2
Number of patients with vomiting	1

years' duration. Major complicating diseases were diabetes in three, arthritis in ten, hypoplasia of right kidney in one, hydronephrosis in two, evidence of hypertensive or coronary heart disease in thirty-one. Other complications were glaucoma, skin cancer, obesity, cervical polyp, fibroids. Two had had bilateral sympathectomies. Systolic blood pressures taken after a period of rest ranged from 148 to 268 mm. of mercury with a mean of 192. Diastolic pressure ranged from 88 to 160 with a mean of 112. These patients were not selected except that no cases of decompensation, marked coronary, or renal damage were included. The great majority of them had had the usual treatment of hypertension including sedation, attempt at social adjustments, rest, cardiovascular support, vasodilators, et cetera.

Phenolsulphonephthalein, blood urea nitrogen and urine concentration and dilution tests were done on all patients in addition to the usual laboratory studies. Intravenous pyelograms were done with genito-urinary consultation on all these presenting the slightest reason to warrant study from that angle. All the patients were given the drug even if kidney function was poor but the dose was smaller and the patients were followed much more closely as the blood cyanate concentration increased very rapidly in those with poor kidney function. Most had electrocardiograms and orthodiagrams.

Method of Administration

The initial dose was three grains of potassium thiocyanate by mouth once daily. This dose was continued for one week. At the end of that time the blood cyanate concentration and blood pressure were determined. This procedure was done every week or two. If a sharp drop in blood pressure occurred or if toxic symptoms or severe weakness developed, the dosage was decreased. If the blood cyanate level had not reached 12 mg. per cent, if no blood pressure drop occurred and if no signs of toxicity were present, the dose was increased by three grains daily every week or two until a drop did take place, the blood cyanate level did reach 12 mg. per cent or definite toxic symptoms developed. When the symptoms, blood pressure, dosage and blood cyanate level had been correlated to the best results possible, the patient was observed at one to three months' intervals. A level higher than 12 mg. per cent was lowered by decreasing the dose of the drug until the level was less. An attempt was made to keep the cyanate level as low as possible compatible with the well-being of the patient and lowering of the blood pressure. Tolerance to the drug has not developed.

TABLE V. EFFECT OF TREATMENT

	Before KCNS	After KCNS
Systolic blood pressure range	148-268	118-250
Average systolic blood pressure	192	156
Diastolic blood pressure range	88-160	70-148
Average diastolic blood pressure	112	96
Number of patients	70	
Number of patients with reduction of systolic and diastolic blood pressure of 15 per cent	32	
Number of patients with reduction of systolic and diastolic blood pressure of 10 per cent	15	

Of the seventy patients treated with potassium thiocyanate, fifty-eight had symptoms usually associated with hypertension; headaches, dizziness, weakness, tinnitus. Of these fifty-eight, forty-three felt much better while under treatment. Too rapid a reduction in blood pressure often produced a marked feeling of weakness but for a few weeks only. Two developed a rash about the neck but this disappeared on withdrawal of the drug. Two had a severe diarrhea which ceased on reducing dosage. One had vomiting which ceased when potassium thiocyanate was stopped. On giving phenobarbital the drug was resumed with no further difficulty.

Taking the effect of thiocyanate on the whole series, the systolic blood pressure in this group dropped from a range of 148 to 268 mm. of mercury to 118 to 250; the diastolic from a range of 88 to 160 to 70 to 148 mm.; and the average systolic blood pressure dropped from 192 to 156 mm. of mercury. In judging improvement in blood pressure an average reduction of 15 per cent or more in the average of systolic and diastolic blood pressure for the period before thiocyanate was started was considered good. A reduction of 10 per cent or more was considered fair. On this basis, good response was obtained in thirty-two patients and fair in fifteen patients.

TABLE VI. BLOOD CYANATES AND DOSAGE

Range of Dose Daily	Average Dose Daily	Range of Blood Cyanate Level	Average Blood Cyanate Maintained
3 to 18 grains	7.2 grains	2.5 mg. to 11.6 mg.	6.9 mg.

The optimum blood cyanate level varied a great deal in different individuals and often in the same person at different times. This level ranged from as low as 2.5 mg. to 11.6 mg. per cent. The average of the group, judging on the basis of subjective and objective response in those who gave a satisfactory result, was 6.9 mg. per 100 c.c. of blood. Dosage varied a great deal and often in the same patient at different times ranging from 3 grains every other day to 18 grains daily. The average daily dose was 7.2 grains. Blood counts, urinalysis, and electrocardiograms showed no significant changes during treatment with this dosage.

On ten patients who gave response to treatment, placebos were given after a period of stabilization. Beyond change to the placebo, no other change was made in any procedure of treatment. Blood pressures were taken under the same conditions as during treatment with potassium thiocyanate. Placebos were then given for four to eight weeks. At the end of the four- to eight-week period, potassium thiocyanate was again started with the same dosage as last given. The blood pressure tended to remain lower while a placebo was administered than before treating even after the blood cyanates were reported as only a trace or none at all.

Case Reports

Case 1.—A. S., a sixty-two-year-old white man, was first seen October 10, 1941, with a history of hypertension of eight years' duration. B.U.N., P.S.P., urine concentration and dilution, electrocardiograms and blood cell counts were within normal limits. The only symptom of hypertension was a severe headache. Blood pressure ranged from 170 to 200 systolic and 96 to 110 diastolic with an average of 180 systolic and 102 diastolic. Thiocyanate, begun on December 30, 1941, controlled the headache and a dose of six grains maintained a lowered blood pressure averaging 131.2 systolic and 85.8 diastolic on a dosage of six grains of potassium thiocyanate and a blood cyanate level averaging 3.4 mg. per cent.

Case 2.—D. C., a fifty-three-year-old woman, was first seen May 20, 1942, with a history of hypertension of two years' known duration and no hypertensive symptoms. Laboratory routine tests were within normal limits. Blood pressure before treatment ranged from 210 to 232 systolic and 108 to 120 diastolic with an average of 224 systolic and 112 diastolic. Potassium thiocyanate was started July 2, 1942. On a dose of six grains, the blood pressure dropped to an average of 168 systolic and 91 diastolic on an average dose of six grains and blood cyanate level averaging 9.8 mg. per 100 c.c. of blood.

TABLE VII. COMPARATIVE EFFECT OF PLACEBO ON TEN PATIENTS

	Before KCNS	After KCNS	On Placebo	On repeating KCNS
Range in systolic blood pressure	158-230	118-180	148-220	126-184
Range in diastolic blood pressure	88-132	70-100	88-112	78-102
Average systolic blood pressure	208	152	190	156
Average diastolic blood pressure	108	88	98	92

On January 21, 1943, a placebo was given. On February 16 the systolic blood pressure rose from 172 to 220 and the diastolic from 98 to 110 while the blood cyanates were 1.1 mg. per cent. On March 9, 1943, the systolic blood pressure was 216 and the diastolic was 108 and blood cyanates a trace. On this date potassium thiocyanate was again started with six grains and on March 23, 1943, the systolic blood pressure was 174, the diastolic blood pressure was 94 and the blood cyanates 5.5 mg. per cent.

Comment

Assuming that it is desirable to reduce the blood pressure in hypertensive patients in order to lessen the dangers of cardiac failure, cerebral hemorrhage, and uremia, it is reasonable to believe that any drug that will do so even if only moderately or for only limited periods, will tend to prolong life. Whether potassium thiocyanate will prolong life in hypertensive people is, of course, the factor that needs more prolonged intensive study. We believe that in potassium thiocyanate, we have a valuable drug in attempting to obtain this end. It is toxic and should only be given under strict supervision and careful laboratory check. Under these circumstances,

it is safe but it should only be given to coöperative patients. As in all chronic diseases where medication is used over prolonged periods, it is very difficult to keep patients on treatment especially if they have no symptoms, are feeling better, and at the same time must report at relatively frequent intervals to get blood tests. It is possible, though admittedly difficult, to do this by impressing the patient with the importance of trying to reduce the pressure to avoid the usual hypertensive risks.

Summary

1. Vitamin A had no effect in twenty cases of hypertension.

2. Potassium thiocyanate in seventy cases resulted in 15 per cent reduction in blood pressure in thirty-two cases and 10 per cent in fifteen cases.

3. Potassium thiocyanate gave symptomatic relief in forty-three of fifty-eight patients with hypertension symptoms.

4. Potassium thiocyanate should be used only under strict laboratory supervision and only in coöperative patients.

5. The blood cyanate level should not exceed 12 mg. per cent.

6. The question of the ability of this drug to prolong life in hypertension patients needs more intensive study and control groups over a long period of time.

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DIVERTICULITIS

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A DIVERTICULUM may occur as an outpouching from any hollow viscus or duct. Its more frequent occurrence in the urinary bladder, urethra, gall bladder, common duct, and the entire gastro-intestinal tract is better known. It has been stated that 5 per cent of post-mortem examinations will show diverticula; and clinically, it is held that the percentage is even higher.

According to Dixon, Deuterman, and Weber, the site of diverticula of the intestines is as follows:

Site	*Per Cent*
Duodenum	18
Jejunum	6
Ileum	1.5
Cecum and Ascending Colon	4.5
Sigmoid	59.5
Rectum	3

The percentages of its occurrence for the pharynx and esophagus are quite small. Lackhard Mummery stated that the number and size of diverticula are increased as the opportunity is afforded for observation over a period of years. They occur usually in individuals over forty years of age, but have been reported at all ages. Staut reports an incidence of diverticulosis in 1.89 per cent of the appendices removed at the Presbyterian Hospital in New York in one year. These diverticula occur between layers of the meso-appendix projecting like buds and are often multiple.

Rankin's classification provides an excellent division in terms of pathology, clinical manifestations and indications for treatment.

1. Diverticulosis. These are cases where, as a result of history and examination, x-ray, or autopsy, the diverticula were found to have no relation to the patient's complaints.

2. Diverticulitis. This term indicates acute or chronic infection, complicated with the formation of abscesses and fistulas, external and internal (vesicocolic-enterocolic), and cases associated with malignancy.

There is no unanimity of opinion regarding the cause of diverticulosis. Usually the acquired type is seen near middle age and some hold the opinion that the fundamental cause is the inherent weakness of the intestinal musculature, with increased intraluminal pressure. The locations are at the entry of blood vessels and also at the sites of the appendices epiploicae.

As a diverticulum has only two layers, the mucosa and peritoneum, forming the wall of the diverticulum, it has no power to expell any contents it may acquire. One can readily understand that if the neck of the sac is narrower, there is a constant potential danger of obstruction, distention and inflammation. A diverticulitis then results.

That diverticula of the colon can be visualized by roentgen ray in the abscence of symptoms is of no great significance, and is not an uncommon finding in about 5 per cent of individuals. However, when symptoms point to the region where diverticula were seen, it is reasonable to assume that a diverticulitis involving one or more sacculations is present. Secondary infection from retained fecal material is usually an important factor.

In the chronic recurring type, we have a low-grade inflammatory process limited to one or a few of the sacculations. The symptoms are not of a severe nature, but the patient complains of lower left abdominal pain and soreness aggravated by exercise, pressure of clothing, and constipation. The severity of the symptoms vary from very mild to those of a more subacute nature, and even the formation of a mass in the left groin does not prevent these patients from being up and around and are seen at times in the office. The condition usually involves many diverticula and with the inflammatory process of each spreading and coalescing can involve a considerable segment of the sigmoid producing a rigid pipe-like portion, which may persist over a long period of time (even years) before it gradually subsides. Some patients will carry this indurated area indefinitely and with the occasional exacerbations of symptoms the individual may be incapacitated for a varying length of time. Spasm of the adjacent segments of the intestine tends to aggravate the condition, causing the patient to exaggerate his complaints.

The diagnosis of the chronic form offers little trouble as a rule, as the history, physical find-

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ings, and the roentgen ray show sufficient evidence. At times, mistakes have been made when a mass has been found low in the cul-de-sac and, without x-ray corroboration, it has been mistaken for an ovarian tumor or endometriosis. Again, the interpretation of the x-ray film may offer difficulty, and some of these cases have been considered malignant. It is well to remember that in diverticulitis, the filling defect as seen with the fluoroscope or film is much longer as contrasted to malignancy which involves as a rule a smaller segment. Those offering this difficulty in diagnosis usually do not show any individual diverticula at or near the malignant lesion in question. Furthermore, there is no evidence to support the belief that carcinoma results from diverticulitis, although in a small percentage the two may coexist. Errors occur most frequently in women, where there may be vague, indefinite symptoms of lower abdominal and pelvic distress and a mass may be felt on bimanual examination, its exact nature at times being difficult to determine.

The use of the proctoscope and sigmoidoscope will at times help in identifying the presence of these diverticula in the upper rectum or lower sigmoid. The signs of decreased mobility, angulation or narrowing of the bowel, and the presence of one or more openings or dimpling would be of great assistance in diagnosis.

Graham summarizes the symptom complex of diverticulitis as follows:

> "The patient is over forty years of age, and has suffered vague, recurring abdominal distress, mostly in the lower abdomen, often radiating into the rectum and relieved by the passage of flatus and stool. Constipation, with rare bleeding and occasional diarrhea is present in a fair proportion of cases. Almost all patients will give a past history of attacks of acute abdominal pain associated with fever."

In the acute form, it resembles very much the symptoms of an acute appendix and has been called left-sided appendicitis. While the inflammatory process may be similar to appendicitis the treatment of diverticulitis is different. The process is acute at its onset, involving one or more diverticula and is characterized by pain, temperature, nausea, and vomiting, leukocytosis and localized tenderness with rigidity and constipation. The disease may subside and the bowel will apparently return to nearly normal, but recurrence may take place at intervals of weeks or months. Perforation of one of these diverticula may occur with ensuing general peritonitis, or, as more frequently occurs, protecting adhesions form with the omentum, neighboring loops of bowel, the bladder, or the abdominal wall, thus localizing the abscess. The inflammatory mass may subside or perforation and fistula formation into one of the above-mentioned structures can occur. One of the less common sites of this complication is the urinary bladder and the vesicocolic fistula results. The advent of this serious complication, which is more often seen in males, is characterized by cystitis and passage of gas and fecal matter per urethram which manifestations are easily diagnostic of the condition. Low diverticula in the upper rectum have been the cause of ischiorectal abscess and fistula, and vesicovaginal fistulæ have often been encountered.

I have had one case where a perforation posterior in the region of the sacrum resulted in a fistula which burrowed around the retroperitoneal area of the left ileum, and into the sacro-iliac joint. On another occasion, a patient with acute severe lower left abdominal pain and constipation took an enema and the pressure of the water caused a perforation of the weakened inflammatory wall at the junction of the bowel and diverticulum. A hurried laparotomy revealed the free fluid in the abdominal cavity, and a colostomy was done in the descending colon above the large, indurated, pipelike, inflammatory sigmoid. The patient recovered, and up to this date, several years after the operation, has refused to have the colostomy closed.

My attention was recently called to a case which came to post-mortem. A ruptured diverticulum was followed by a pelvic abscess, this in turn being followed by a subdiaphragmatic abscess which was undiagnosed and ruptured into the pleural cavity causing empyema and in time death from toxemia.

Treatment

The treatment of diverticulosis is of little consequence. The condition is diagnosed usually when a barium enema is given. However, when diverticulosis is recognized, the patient should be warned that constipation might be a factor in producing diverticulitis and that proper steps should be taken as regards diet and elimination. One should remember that complications can develop during the time that they are under medical treatment.

However, should an inflammatory process start in these small out-pouchings, continued regulation of the bowels, the application of heat—especially diathermy, and rectal irrigations should be instituted and anti-spasmodics should be given. While the latter have no effect on the thickened and inflamed bowel, they do on adjacent loops. The giving of the various sulfa drugs may greatly modify the course, and perhaps abort a sudden, acute flare-up from the chronic state. Sulfasuxidine, acting more directly on the intestinal flora, tends to reduce the gas formation, and thereby relieves the intralumen pressure, lessening some of the symptoms. This combination of treatment will usually take care of the majority of cases in a comparatively short time, but, if the condition is more acute it is absolutely necessary that the patient be put to bed and watched very carefully.

There have been two schools of thought regarding the procedures to be taken at this stage: one is the concentration on watchful waiting and symptomatic treatment; the other is early operation. Erdman especially is outspoken in his advice: "The acute condition presents but one solution in the absence of contra-indications, and that is, early operation!" This is quite contrary to the stand taken by the majority of surgeons who feel that operation should be reserved for the complications such as perforation and obstruction. It should be realized that there is an 18 per cent operative mortality, and furthermore, there is also the economic factor to be considered, as some individuals are under care for a long time as a result of complications following operation on the acute suppurating mass. Extensive pylephlebitis may be present around the mass and extend into the large mesenteric veins.

Again the sulfa compounds are of definite value, and when impossible to use by mouth, sulfanilamide, in 0.9 per cent solution, can be given under the skin, or 5 gm. of sulfathiazole in 75 c.c. of water may be given intravenously. Both of these have been valuable adjuncts in handling these very acutely sick patients.

Perforation in the majority of cases is of the protective type where adhesions have had time to form and, as a result, the general peritoneum is usually walled off and all that is necessary at this time is to drain the abscess. The obstructive types should be handled by procedures indicated for conditions present at the time.

Obstruction in the terminal colon is not of such a serious nature as that in the small intestine, and temporizing with the condition may be allowed for a time. The use of nasal suction may often be of benefit if the iliocecal valve is not too efficient in keeping the gas trapped in the colon. Hot packs or diathermy to the abdomen and repeated warm rectal irrigation may tide the patient over the obstructive crisis and obviate operation. One can well afford to wait and try these methods for a number of days before advising more radical interference. The general condition must be carefully watched and supportive measures with plenty of intravenous fluids and transfusions can be utilized as required.

Colostomy above the infected area carries very little risk. However, it is necessary to continue the side-tracking of the intestinal contents for some time (many months) to permit all the inflammatory reaction to subside. If a more direct attack on the mass itself is advisable, the Mikulicz type of resection in the presence of a distended thickened bowel is the safest. It may require more hospital days for the patient, but a resection and direct anastomosis is more hazardous. However, in doing any type of resection it is even safer on account of the inflammatory thickening, perforation or possible abscess formation and the difficulty in handling the mass to do a preliminary temporary colostomy. The internal fistulous openings with the bladder or intestines, or to the exterior can usually be dealt with much more easily and safely after a previous colostomy, and a sufficient length of time should elapse afterwards to permit a subsidence of the inflammatory process before radical procedures are undertaken. This may take many months before complete disappearance of the mass occurs, but one should be willing to wait, and may at times be surprised to find that nothing further will be required in the way of a direct attack on the lesion itself, and only closure of the colostomy is necessary.

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INTRAPLEURAL PNEUMONOLYSIS

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DURING the last ten years intrapleural pneumonolysis, the procedure of cutting intrapleural adhesions, has assumed a very important place in the therapy of pulmonary tuberculosis.

For many years artificial pneumothorax had been employed by physicians to collapse the diseased lung in order to induce more rapid and complete healing of the tuberculous process. In those cases where an adequate collapse was obtained the results were usually very satisfactory. However, in many cases where pneumothorax is induced, an adequate collapse is not obtained due to the presence of sheet, band, or cord adhesions between the visceral and the parietal pleurae. These adhesions are caused by an inflammatory process or pleuritis occurring in the areas adjacent to the tuberculous process in the lung parenchyma. For this reason they often prevent an adequate collapse of that part of the lung where it is most necessary if the disease process present is to be controlled. It is in these cases that intrapleural pneumonolysis plays such a vital role. By severing these adhesions, a good collapse results and control of the tuberculous process can be obtained.

It is not the purpose of this paper to discuss in detail, all the aspects of intrapleural pneumonolysis. But we do wish to call to your attention the fundamentals of this procedure, and its place in the modern treatment of pulmonary tuberculosis.

The operative procedure of intrapleural pneumonolysis is briefly this. Two cannulae are inserted through the intercostal spaces into the pleural cavity at points selected after location of the adhesions by means of fluoroscopic and x-ray studies. A thoracoscope is inserted into one cannula and an electrocautery is inserted through the other. Thus the adhesions may be cut under complete visual control. The operation is performed under local infiltration anesthesia, using 0.5 to 1 per cent novocaine. Extreme care and judgment must be used in deciding which adhesions are safe to cut and which ones must be left alone. As the skill and confidence of the surgeon increases he finds that he can cut many of the more difficult adhesions with reasonable safety. The surgeon must evaluate the risk involved in cutting the various types of adhesions encountered and balance this against the risk of leaving the underlying disease process uncontrolled.

One cannot always tell by examining the chest plate whether or not the adhesions are cuttable. However, if the pleural space is sufficiently large to permit manipulation of the thoracoscope, it does no harm to examine the adhesions under direct vision, and determine if they can be safely cut.

As a result of our experience with this procedure we have come to believe that intrapleural pneumonolysis should be considered in every case of pneumothorax where the collapse of the lung is inadequate because of adhesions. In other words, if there is enough diseased lung present to warrant collapse by pneumothorax in the first place why not use any reasonably safe procedure to make the collapse as effective as possible?

The optimum time interval between induction of pneumothorax and the attempted pneumonolysis may vary from two to six weeks. We have done most of ours within three or four weeks after starting the pneumothorax. In some cases it has been found advantageous to sever the adhesions in more than one stage. The time interval between stages will depend upon the type of adhesions present and the underlying parenchymal lesions. We believe that in most cases the interval should be not less than two and not more than six weeks.

The complications resulting from intrapleural pneumonolysis are neither serious or numerous in the great majority of cases. Transient pleural effusion of small degree occurs rather frequently. In some cases there is persistent effusion requiring aspiration. The most dreaded complication is empyema. However, statistics of surgeons experienced in this procedure show that empyema occurs in but 1 to 4 per cent of cases. The benefits from an adequate collapse greatly offset the risk taken in this respect.

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Serious hemorrhage in capable hands occurs so seldom as to be disregarded as a serious risk. Surgical shock occurs but rarely.

Emphysema of the chest wall in moderate amounts may occur rather frequently but disappears usually within a week or ten days. This occurs when air in the intrapleural space is forced out through the cannular incisions into the chest wall, due to coughing or vomiting.

Our series of cases at Mineral Springs Sanatorium is relatively small and dates from October 1, 1940 to June 1, 1943. It represents sixty-four operations performed on forty-six patients. Twenty-nine patients had a one-stage pneumonolysis, sixteen patients had a two-stage, and one patient had a three-stage. Two patients had bilateral operations.

Dr. T. J. Kinsella of Minneapolis performed three of the operations and Dr. G. A. Hedberg of Nopeming Sanatorium performed three of them. The remainder were performed by the author.

Of the forty-six patients, nineteen were diagnosed as far advanced on admission to the Sanatorium; twenty-five were moderately advanced and two were minimal.

Thirty-seven patients had positive sputum before operation. Thirty-five patients had definite or suspicious cavitation in the lung on the operated side. An apparently successful collapse of the operated side was obtained in thirty-six cases (78 per cent). By apparently successful collapse of a lung we mean cavity closure and arrest of the disease process as shown by radiograph. In four cases, we were unable to safely cut enough adhesions to effect an adequate collapse with cavity closure on the operated side.

Of the seven patients who still have positive sputum, three have cavities in the opposite lung.

Twenty-nine of the forty-six patients are now considered as arrested or apparently arrested cases. Eight more are greatly improved and progressing satisfactorily at the present time.

Four of the forty-six patients are now dead. Two of these died within sixty days after operation. One of these two developed a fresh spread on the opposite side and the other was complicated by empyema and a severe diabetes mellitus.

Of the other two deaths, one developed a broncho-pleural fistula on the operated side with resulting empyema three months after operation, and one died fifteen months after operation due to a spread in the opposite lung. The four patients who died had far advanced tuberculosis on admission to the sanatorium.

Summary

Of forty-six patients in this series 29 are now arrested or apparently arrested; eight are greatly improved and making satisfactory progress; five still have activity not yet under control; and four are dead.

Conclusions

Intrapleural pneumonolysis is a very satisfactory method of converting an inadequate pneumothorax into a successful one. In capable hands it is reasonably safe and there are very few serious complications. We feel that all cases of unsuccessful pneumothoraces should be considered for this procedure in order to obtain the best results.

BREAD-MOLD PREVENTIVE CURES ATHLETE'S FOOT

Sodium propionate, a chemical now being used by many large baking companies to check the growth of mold in bread and cake, is an effective remedy for athlete's foot, ringworm and many other fungous infections, Dr. Edmund L. Keeney, of Baltimore, and Comdr. Edwin N. Broyles, of the Johns Hopkins Medical School now serving in the Navy, report. (*Bulletin of the Johns Hopkins Hospital.*)

The chemical is used in an ointment, as a powder and in a solution.

Some of the fifty-five midshipmen at the U. S. Naval Academy who used the chemical for athlete's foot were cured in four weeks. After twenty weeks of treatment, fungous material was found in scrapings from the feet of only three of the men.

The remedy was equally effective in patients with ringworm of the scalp and of the skin, fungous infections of the ear, thrush and blacktongue due to a fungus.

Besides the ninety patients reported on, an additional 376 have been treated with sodium propionate in ointment, powder or solution, without any sign of irritation from its constant use. A contact dermatitis developed in one patient after four days of treatment.—*Science News Letter,* February 12, 1944.

HUMAN SERUM AND PLASMA IN PEDIATRIC PRACTICE

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HUMAN serum and plasma have found an especially secure place as therapeutic agents in diseases of children. The relative lability of the infant's fluid matrix, his lack of immune response to many infections, and the nature of disturbances peculiar to his age, combine to pose a threat which can often be countered most effectively by physiologic constituents of blood.

Transfusions of citrated fresh whole blood were formerly employed for all these conditions, and, of course, they are still used effiectively in instances where oxygen-carrying capacity of red blood cells is needed. While stored blood has been tried as a substitute for fresh blood, it has been shown to be relatively unstable. There is a gradual drop in erythrocytes, leukocytes, prothrombin, complement, and in antibacterial properties.[5,15,22,23,24] Diffusion of potassium from the red cells makes its use especially undesirable if renal or hepatic insufficiency is present.[8]

Serum and plasma are indicated and superior to blood in acute and chronic infections, in states of hypoproteinemia, in severe disturbances of fluid equilibrium, and in conditions due to inincreased capillary permeability caused by burns trauma, and hemorrhage.[19]

Interest in physiologic protein substitutes has been especially stimulated by the more recent investigations on the physiology of fluid equilibrium and shock.[2,6,9,11,16,19,26]

Plasma, the fluid portion of non-coagulated blood after removal of blood cells, is made up of albumin, globulin, fibrinogen, water, electrolytes, antibodies, and other organic constituents of blood. Although plasma is more popular as a blood substitute in this country, serum, which is almost identical, save for the removal of fibrinogen by clotting, is easier to prepare and has been the agent of choice for convalescent antibody transfer in children. Convalescent serum or a hyperimmune modification of this has been employed in many acute infections but it has been found especially effective in the prophylaxis and treatment of scarlet fever, measles, pertussis, and epidemic parotitis.

It is probable that a pool made up of specific sera collected from scarlet fever patients in a given epidemic will contain many specific antibodies against the type of hemolytic streptococci most commonly encountered in that epidemic. For this reason it is important that convalescent sera be collected early in an epidemic, pooled, and used for therapeutic purposes while the organisms against which the antibodies have been elaborated are still predominant. Type-specific antibody, whether produced by, or transmitted to, a patient, is an important part of the recovery mechanism from streptococcal disease. When conferred intravenously to the sick child, who may be incapable of efficient antibody production himself, it quickly combats toxemia and inhibits bacterial invasion.[21]

Reports on the use of convalescent measles serum have contributed to a vast medical literature. However, it was not until effort was made to collect, pool, and preserve a large supply of serum that reports of controlled experiments began to appear, and its value became generally acknowledged. It is now recognized as the most effective agent available against a disease which has appeared as a real menace during time of war.

Success with convalescent serum in measles led to attempts toward modification of whooping cough. Bradford[3] contributed much fundamental research to this problem. He showed that intratracheal inoculation of H. pertussis into a mouse would produce consistently uniform findings in the lungs. He made use of investigations of humoral immunity in pertussis chiefly directed toward studies relating to specific agglutinins and complement-fixing antibodies.

Because of the increase in the opsonocytophagic reaction in the blood of individuals who have a history of pertussis and were subsequently hyperimmunized, this procedure has been recommended to make available a group of donors for hyperimmune convalescent serum. This hyperimmune

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serum protected young mice against death from experimentally induced infection with H. pertussis when the serum was injected at the same time that the organisms were administered.[4] Thirty-two from a group of forty treated mice survived, while only four survived from a group of forty controls. The degree of lung involvement in the treated group was definitely less than in the controls. The difference between the groups in the number of mice showing negative lung cultures at autopsy was also statistically significant.

Bradford tested the effect of hyperimmune human serum upon the humoral antibody titre in human pertussis. A group of nineteen infants and three children in the early stage of pertussis were treated by the intramuscular injection of from 10 to 40 c.c. of hyperimmune human serum. In nineteen of the group the opsonocytophagic reaction and agglutinin titres of the blood were determined immediately before and after serum injections.[14] The humoral antibodies as measured by these methods were increased to levels comparable to those characteristic of convalescence. A definite decrease in the absolute number of lymphocytes of the blood was noted in fifteen of the twenty-two cases, and there was marked improvement in the clinical course of the disease in eighteen of the twenty-two cases treated with the serum. Although evaluation of serum in whooping cough is most difficult from a statistical standpoint, results with the use of hyperimmune serum among exposed or afflicted infants have been dramatic in our experience. It is prepared in our laboratory from the blood of medical students who give a history of pertussis and who have been inoculated at frequent intervals with Sauer's vaccine during a period of one year.

Mumps convalescent and pooled normal adult serum have been used by McGuiness, Stokes, and Mudd.[17] Results in comparative studies with controls strongly suggest that it has prophylactic merit when used promptly after exposure.

A favorite form of treatment used by many physicians in cases of bacteremia is the administration of transfused blood. The transfusion is generally given not because the patient needs blood cells but because he needs the immune substances contained in the transfused blood. It has been observed many times that patients with bacteremia show a slight increase in the complement titre of their blood at the onset of the illness. The amount of complement decreases as the infection progresses and with recovery gradually returns to normal. In severe cases, the complement continues to decrease, and many severely ill patients show a complete absence of complement. Most of the patients dying of bacteremia show a great decrease or a total absence of complement in their blood. It would therefore seem that complement constitutes a very important immunological factor in combating infection.

It has been shown by Cadham[7] and others that patients transfused with large or moderate amounts of whole blood suffer a loss of complement. When serum alone is administered, on the other hand, complement actually increases. From this it may be assumed that decrease in complement following whole blood transfusion is due in some way to the cellular portion of the blood. Moreover, it seems that transfused serum actually stimulates the production of the recipient's complement. Complement titres taken following transfusions with serum become higher than could be accounted for by the complement contained in the transfused serum alone. It is suggested, therefore, that additional complement is produced by the patient himself, due to the stimulating action of the transfused serum.

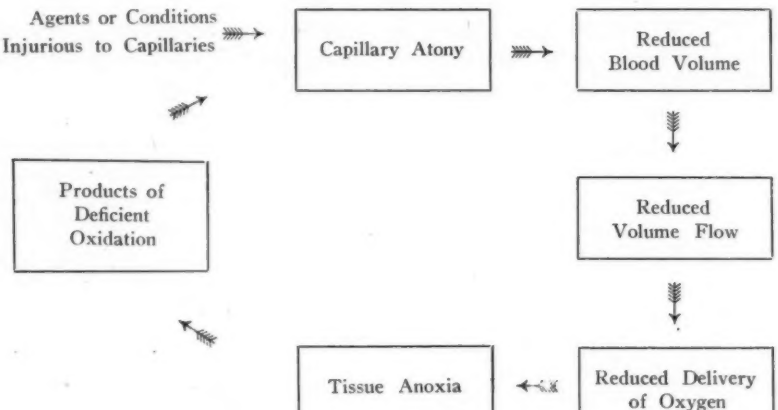
It is well known that chronic infections often cause a depletion of protein in the body. As in acute infections, where protein levels may have a bearing on survival,[25] the influence of chronic infection is similar even though the results are less dramatic. Moreover, a cycle is often initiated during chronic infections in which diminished protein intake, excessive loss of protein, hypoaminoacidemia, and negative nitrogen balance may result. Plasma or serum can materially help to combat chronic infection in children in two ways: (1) by its non-specific effects on metabolism and (2) by conferring antibodies contained in adult plasma pools. Infections in the very young are often accompanied or overshadowed by the effects of hypoproteinemic states.

Disturbances of fluid equilibrium, especially dehydration, in the sick child are frequently of greater importance than the underlying disease itself. This is true because of the relatively greater susceptibility of children to the effects of changes in volume and character of body water.

The small child has a greater percentage of water in his body than the adult and a greater partition of this is extra-cellular where it serves to maintain plasma volume. He may, therefore,

lose a proportionately greater amount of fluid during dehydration. If, following vomiting, diarrhea, or the pronounced febrile response so common to the child, he loses water and salt to the point where replacement of these does not bring about maintenance of his fluid stability, it is because adequate quantities of these are not retained in the blood stream. There then begins a cycle of diminished blood volume, hemoconcentration, impaired renal function, and loss of electrolyte balance. If protracted vomiting has been the prominent symptom and alkalosis is indicated by the occurrence of shallow respiration, hypertonicity, and lack of chloride excretion, the therapeutic need is saline solution, calcium gluconate or chloride, and plasma intravenously. If, on the other hand, diarrhea, with loss of basic intestinal secretions has occurred, reduction in plasma bicarbonate may have reached an extreme. Hemoconcentration and stagnation then cause impaired renal function. Exhaustion of carbohydrate reserve and anoxemia permit intermediate products of fat metabolism and acids to accumulate in the blood. The resulting acidosis may then be attended by an increase in capillary permeability and manifested by stupor, hyperpnea and symptoms of shock. Such a seriously altered physiologic state can best be corrected by the intravenous administration of glucose and buffered sodium lactate or bicarbonate, followed by a protein colloid such as plasma. Restitution of plasma volume will tend to increase renal function. Fluids containing buffer substances may then be held in the blood stream so that a sustained trend toward proper water and electrolyte balance can be achieved.

Nutritional deficiencies are intimately concerned with a lack of protein. Studies reveal clearly that reduced plasma protein is directly responsible for nutritional edema in children whether the primary cause of the hypoproteinemia is prematurity, inadequate feeding, coeliac disease, or any process which interferes with normal fabrication of protein.[18] When plasma protein and volume are restored, edema promptly disappears. The relative frequency of this condition and its association with malnutrition has been especially emphasized by K. Dodd.[10] There is no doubt that nutritional hypoproteinemia at or slightly above the "edema level" is very common in delicate babies and children with deficiency diseases, and that a prompt restoration of normal levels may alter an apparently refractory clinical course.



From a relatively simple beginning these altered physiologic conditions, accelerated by infection or other factors, often rapidly approach a critical state. Much of the mechanism of secondary shock then develops.

More dramatic and urgent than secondary or medical shock is the rapidly progressive primary shock precipitated especially by trauma, hemorrhage, and burns. Moon[19] and others have shown that plasma escapes through the capillary walls into the tissues in all types of shock and that diminution of blood volume results. While the intimate nature of shock is not yet entirely clear, and some disagreement still prevails concern-

ing the neurogenic, vasogenic, and hematogenic roles involved, the accompanying schematic presentation by Moon serves to present many of the stages in its pathogenesis. (See page 192.)

Increased permeability of the capillaries and plasma loss are attended by reduced blood volume, capillary dilatation, hemocytoconcentration, lowered venous pressure, reduced cardiac output and volume flow, anoxemia, and tissue anoxia. If these changes continue and are not recognized by the finding of a high hemoglobin, red blood cell count, hematocrit, and specific gravity of the blood, a resulting fall of arterial pressure and an irreversible state develop rapidly. Plasma can interrupt this process by increasing the circulating blood volume and improving vascular tone.[12] Fluid is thus drawn back from the tissues due to increased osmotic pressure, and the improved blood volume helps to reverse the cycle. Some observers prefer concentrated plasma for this purpose.[20]

Restoration of serum protein values for elevation of osmotic pressure of blood to reduce localized or generalized collections of intracellular fluid has been attempted in nephrosis.[1] Patients with a favorable response lose weight in a manner similar to that in which weight is lost in spontaneous renal crisis, which may mean that a similar process is initiated by this type of treatment. Cases with a nephritic component do not show such a response.

Hughes, Mudd, and Strecher[13] have reported a series of cases in which concentrated serum was used for the reduction of increased intracranial pressure. They point out that concentrated blood serum approximates the theoretically ideal hypertonic solution for reducing intracranial pressure. It is essentially a solution which has a high osmotic pressure and contains solutes which will remain in the blood vessels to exert a continued osmotic effect.

Experiments on dogs were conducted by Wright and Bond[30] in which cisternal puncture was done to obtain continuous readings of intracranial pressure. Their results indicate that a single administration of concentrated serum may produce lowering of increased intracranial pressure for as long as twenty hours.

Investigators[29] of the causes of disruption of abdominal wounds have pointed out that experimentally and clinically a state of hypoproteinemia may be one of the factors which retards normal healing. Dogs in whom a state of protein deficiency was induced were subjected to abdominal laparotomy. In most of these, disruptions of the wound or failure of the incision to heal was observed. Subsequent experiments demonstrated that normal healing of the wound occurred when the hypoproteinemia was controlled by intravenous infusion of plasma. Concentrated plasma is thought to have two advantages; it rapidly corrects the deficiency of blood proteins, and, being a hypertonic solution, increases the osmotic pressure of the blood and tends to overcome any tissue edema which may be present.

Rapid extensive hemorrhage causes dilution of blood, loss of extra-vascular fluid, dehydration, and distorted fluid equilibrium. Since immediate need in severe hemorrhage is restoration of blood volume and pressure and because typing and cross-matching are unnecessary[27] when pooled plasma is employed, it would seem more expedient and safer to use plasma for the hemorrhagic emergency and replace blood cells by transfusion subsequently, if the hemoglobin level is appreciably reduced.

Obviously, no comprehensive formulæ can be evolved to determine the requirement of all factors in a mechanism so complex and precipitated by so many causes as the failing circulation of the sick child. Clinical judgment to determine the need for specific and group antibodies, for fluids, for electrolytes, and for protein sufficient to maintain an adequate circulating blood volume are all important. Determination of plasma protein, the number of red blood cells, the hemoglobin, hematocrit, and specific gravity of the blood are invaluable adjuncts. Katherine Dodd has stated the principle exceedingly well: "In a child taking inadequate food and not receiving transfusions, a gain in weight, accompanied by an increase in hemoglobin and a decrease in plasma protein, means that plasma fluid and protein are being lost from the blood stream."

The dosage of human plasma and serum must depend on the weight of the child and the seriousness of the condition for which it is to be employed. For the transfer of specific antibodies in prophylaxis and treatment of disease, doses of 10 c.c. to 100 c.c. are usually given. In chronic infections and hypoproteinemic states, doses should be gauged to accomplish physiologic levels of plasma proteins. For the sake of illustration, a computation of approximate protein need in a

10 kilogram baby whose plasma protein level is 5.3 grams per 100 c.c. of blood is appended.

Plasma Protein (Patient) = 5.3 gm./100 c.c. Blood
Plasma Protein (Normal) = 6.7 gm./100 c.c. Blood
Deficit = 1.5 gm./100 c.c. Blood

Weight of Patient = 10 K
Blood Volume (8%) = 800 c.c.
Deficit 8 x 1.5 = 12.0 gm.
12.0 gm. = 175 to 200 c.c. Plasma (Approx.)
Additional } x Factor = Depleted Reserve
} x Factor = Maintenance

Plasma and serum are usually stored in the refrigerated, the frozen, and the desiccated states. Strumia and McGraw[28] who have studied the advantages and disadvantages of each method of preservation have summarized these as follows:

"1. Regardless of the means of preservation employed, plasma must be safe from the standpoint of (a) bacterial contamination, (b) presence of flocculent protein precipitates, and (c) unusually high isoagglutinin titre.

"2. The manner of preservation greatly influences the survival of various specific elements of plasma. To summarize: (a) Preservation of plasma in the liquid state at room temperature (approximately 25 C.) causes very little flocculation but rapid loss of prothrombin and complement. It should be filtered before use, and the danger of rapid growth of a chance contamination must also be kept in mind. The value of such material is limited almost entirely to the total protein content. (b) Preservation of plasma in the liquid form at 4 C. maintains a fair quantity of prothrombin and complement for a period of approximately fifty days, but causes maximal flocculation within a few hours. Filtration is essential and the danger of bacterial growth from a chance contamination is not eliminated. (c) Preservation of plasma in the dried state effectively prevents bacterial growth and flocculation, but the regenerated material has lost almost all the prothrombin and a portion of the complement when drying involves quantities of 250 and 300 c.c. It need not be filtered and permits concentration if desired, but it is of little value for hypoprothrombinemia. (d) Preservation in the frozen state prevents bacterial growth and flocculation and at the same time insures almost complete preservation of all specific elements, including prothrombin and complement. After proper thawing it need not be filtered, and the therapeutic value is practically equal to that of freshly prepared plasma. Thawing must be rapid in the water bath at 37 C. and thereafter, until administered, the liquid plasma must be kept at room temperature.

"3. The loss of essential elements occurring with preservation of plasma in the liquid state or in the dried form obviously limits the therapeutic application of plasma thus preserved. Plasma maintained in the frozen state and properly thawed is almost identical to the original material."

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REPORT ON BIOLOGICS AND LABORATORY DIAGNOSIS OF INFECTIOUS DISEASES BY THE BIOLOGICS COMMITTEE* OF THE STATE BOARD OF HEALTH

In May, 1943, the State Board of Health appointed a committee on biologics. It seems especially important at this time with an increasing shortage of physicians throughout the state to do everything possible to forward immunization and to furnish more types of immunizing agents. Because of these considerations, the number of immunizing agents offered by the state were increased July 1, 1943, and the purchase and distribution of all biologics were placed under the Division of Preventable Diseases, University Campus, Minneapolis. This last was done as it is quite apparent that the handling of biologics logically falls under the latter division as it relates to the prevention and control of communicable disease.

Our report is purposely made in outline form hoping that this type of information will prove to be worthwhile to the busy practitioner. Diseases are covered from the standpoint of incidence, laboratory tests, immunization, prevention, and therapeutic biologics. However, not all biologics are distributed by the State Department of Health, and information is given on others as it may be of use to the practitioner. Not all infectious diseases are covered, but the ones that are important in this state at the present time or may be in the near future are included.

The present report summarizes the opinion of the committee at the present time, and the information will be brought up to date from time to time.

Please return requested receipts for biologics and histories to the Division of Preventable Diseases.

NOTE: All biologics must be kept under refrigeration. Before opening any package containing biologics, note expiration and record; if outdated, do not use.

Diphtheria

Incidence in Minnesota: 1943, 377 cases, 21 deaths. 1942, 139 cases, 12 deaths (increasing).

Diagnostic Tests: Cultures on Kleb's Loeffler Media sent to State Laboratories. *Note:* Do not delay use of antitoxin until results of cultures are received.

Active Immunization: Diphtheria tetanus toxoid recommended by this Committee as it also immunizes for tetanus. While the death rate is not high in this state from tetanus, it is as high as from diphtheria. The great advantage in active immunization to tetanus is that otherwise a large number of persons, on sustaining any type of small injury, may be subjected to prophylactic doses of tetanus antitoxin. This may lead to a sensitization to horse serum. Secondly, judging from information available from the American and British armies in the present world war, it would appear that active immunization is an efficient agent in preventing tetanus if a step-up dose is given when injury occurs. (It is the Army practice to give step-up doses yearly after immunization regardless of injury.) A number of published papers on immunization in children have shown that after two or three doses of alum-precipitated tetanus toxoid alone, or combined with diphtheria tetanus toxoid, the tetanus antitoxin level has been at least 0.01 units per cubic centimeter after at least two years. This is considered more than adequate. Sufficient material has not been published to date nor has sufficient time elapsed to give one an adequate idea of how long sufficient immunity may persist so that adequate circulating antitoxin is available after injury in order that a step-up dose of toxoid may be given rather than a prophylactic dose of tetanus antitoxin. Present knowledge does indicate that more circulating antitoxin exists usually two years after adequate immunization with tetanus toxoid than exists temporarily (two or three weeks) after the use of a prophylactic dose of tetanus antitoxin. Tetanus toxoid is an excellent immunizing agent and there is apparently a definite enhancing of immunity when two excellent immunizing agents, i.e., diphtheria and tetanus toxoid are combined. It is recommended that the first immunization be started at 9 months of age and that the diphtheria tetanus alum-precipitated toxoid be given in three doses rather than in two as suggested by the manufacturers. By giving the immunization in three doses, a few slightly unpleasant reactions may be avoided, i.e., local erythema and fever. We should like to point out that not even in allergic children who have been given step-up doses, judging from the publications to date, have real untoward reactions occurred. Older children and adults may have sensitivity to toxoid and these may be tested for sensitivity using 0.1 c.c. intradermally (Maloney test) and proceed as with any other type of injection whether positive or negative. It cannot be over-emphasized that there may be a certain number of adults sensitive to any type of toxoid; for example, formalized or so-called "fluid" toxoid of Ramon. It has been shown in recent years in immunizing large groups of young adults that no difficulty has been encountered with reactions due to alum-precipitated toxoid. It, also, should be strongly urged that caution be used in immunizing older children and adults by using smaller and a larger number of doses of toxoid. This committee wishes to particularly emphasize that a step-up dose of toxoid be given to the child when he is ready to enter school rather than Schick test him to determine presence or absence of immunity. A step-up dose is a far safer measure since then one is more certain of immunity. Although there are a certain number of older adults who are susceptible to diphtheria, we are not advocating general immunization of older adults but rather wish to again impress

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The communicable diseases covered in this issue are those for which biologics are distributed by the State Department of Health through the Division of Preventable Diseases. Information covering the above, as well as the majority of other communicable diseases seen in this state, will be published soon.

the importance of taking nose and throat cultures on all patients seen with sore throats and their contacts, and sending the cultures to the State Laboratories.

To summarize, the committee is recommending primarily for immunization, diphtheria tetanus alum-precipitated toxoid for active immunization. The present policy is to continue to furnish alum-precipitated diphtheria toxoid as long as we have it in stock. It is realized that it may be necessary to continue to furnish a small amount of the latter agent for step-up doses for children who have originally had only diphtheria alum-precipitated toxoid and for whom the community cannot afford the time for a complete diphtheria tetanus immunization. The State Board of Health has discontinued the purchase and distribution of formalized toxoid, not because we do not believe it to be a good immunizing agent but because three doses of this agent are granted to be equal in immunizing value to two doses of alum-precipitated toxoid. If three doses are to be given, the committee is of the opinion that diphtheria tetanus toxoid should be used. The committee is not recommending the pertussis-diphtheria immunizing combination for several reasons:

1. Pertussis immunization should be effected during the first six months of life, as the majority of whooping cough deaths occur in children under one year of age, many in infants under six months. It is hoped that an immunizing agent for pertussis may be developed soon which will be effective at an earlier age.

2. Pertussis immunization when combined with diphtheria has been definitely shown to cause more reactions than when either is given alone.

3. It is safe to delay diphtheria immunization until around nine months and at that time it can be combined with tetanus toxoid and thereby three immunizations are completed.

Schick test material for testing for immunity is furnished by the State Department of Health.

Passive Immunization: Contacts may be given 1,000 units of diphtheria antitoxin but the committee is of the opinion that this should not be done except under exceptional conditions. It is far safer to inspect contacts regularly. A prophylactic dose may give a false sense of security and may not prevent the patient from coming down with the disease.

Treatment: The important thing is to give sufficient antitoxin. This depends on the length and severity of illness. If the disease is mild or moderately severe, 20,000 to 40,000 units of antitoxin should be given intramuscularly. If the patient is seriously ill, from 80,000 to 100,000 and 200,000 units of antitoxin should be given intravenously. There is no harm in large doses of antitoxin and one cannot be certain when one is dealing with a very virulent type of organism which requires large doses of antioxin given early.

Prevention: Immunization diphtheria and tetanus toxoid, Schick test material, and diphtheria antitoxin furnished by the Division of Preventable Diseases.

Measles

Incidence in Minnesota: 11,169 cases in 1943 with 18 deaths. (Doubtless many more cases occurred as disease is not well reported.)

Diagnostic Tests: None.

Active Immunization: Encouraging studies have been made but these are not yet confirmed.

Passive Immunization: Convalescent serum (preferred), immune globulin derived from human placenta and adult immune serum may be effective in the prevention or modification of measles.

When human convalescent serum is given intramuscularly within five days after exposure, in the majority, no disease develops. The passive immunity is of short duration, two to four weeks.

When above serum is given six to seven days after exposure in the majority the disease is limited to a modified form of measles. The following dosage is recommended:

Infants and children under five years—5 c.c.

Children over five years (for every year)—1 c.c.

When serum is given 8 or more days after exposure, there is no assurance of prevention or modification of the disease. The dosage of immune globulin is usually 2 to 4 c.c. Local reactions may follow. If adult serum is used, 15 to 20 c.c. is required, and it is of questionable value.

Treatment: The treatment of measles in the preeruptive stage by convalescent serum in doses of 40 to 50 c.c. by intravenous injection has been advocated. This treatment certainly should be reserved for extremely ill children as convalescent serum is not plentiful. Sulfadrugs are usually effective in complications.

Prevention: The usual health regulations, but it is difficult as the disease is so communicable. Every attempt should be made to protect very young children. *Measles Convalescent Serum* is distributed by the Division of Preventable Diseases for the prevention or modification of the disease in children up to eighteen months of age.

Meningitis Epidemic (Meningococcus)

Incidence in Minnesota: 147 cases in 1943 with 19 deaths (increasing).

Diagnostic tests: If meningeal symptoms are present, spinal fluids should be taken immediately and transported by the quickest method possible to the Preventable Diseases Laboratories. Meningococci are very fragile and may disintegrate in a few hours. If a moderate number or many polymorphonuclear leukocytes and no meningococcus are found on examination the presumptive evidence is that the infecting organism is meningococcus, i.e., if no other organisms are found, the patient should be considered to have meningococcus meningitis. In other words, if the infecting organism is pneumococcus, streptococcus or Hemophilus influenza many organisms will be present in the spinal fluid. In certain cases of meningococcus infections, the infection remains a bacteremia and the patient does not develop meningeal symptoms. Such infections may be fulminating or may be chronic. In instances of blood stream infection without meningeal symptoms send blood cultures to our Laboratories (suitable medium will be furnished). If facilities are available, blood cultures should be done locally since the organisms do not stand transportation well.

Active Immunization: None

Passive Immunization: None

Treatment: Sulfadiazine at present is usually the drug of choice. For the adult, a total of 12 grams should be given in the first twenty-four hours; 6 grams of a 1 per cent solution in physiological saline of the sodium salt intravenously and 6 grams subcutaneously in 1 per cent distilled water. If sulfamerazine is used, the dosage is reduced by one-half. After the first twenty-four hours reduce the dose of sulfadiazine to 3 to 6 grams per twenty-four hours. This should keep the drug at a blood level of 15 to 20 mg. per c.c. The information is given in case there is no way of determining the blood level of the drug. The amount of drug given should be reduced in children according to their weight.

Antimeningococcus antitoxin or antiserum should be used if the patient does not appear to be responding to sulfa drugs. Do not delay too long. *Use all usual* precautions of testing for sensitivity before giving serum. Dosage varies with potency of the preparation and with severity of symptoms in the patient. It is no longer considered good practice to give either sulfa drugs, antitoxin or antiserum by the intrathecal route in meningococcus meningitis. The dose of antitoxin may vary from 20,000 to 100,000 intravenously given in from 120 to 200 c.c. or more of 10 per cent glucose solution. The total antibody should be given in two hours. A child may not require more than 20,000 units. It must be remembered that the aim is to build up an excess of antibodies in the patient's body whether this is accomplished actively or passively. The same general directions may be used for antiserum, but it must be again emphasized that potency varies with the manufacturer. If both sulfa drugs and antibody fail, penicillin may be tried if it can be procured. The initial dose is 75,000 units intravenously the first day followed by 10,000 units every three hours intramuscularly, and with the intramuscular doses two doses of 5,000-10,000 units each are given daily intrathecally.

Prevention: Usual control measures. The epidemiology of epidemic meningitis is not understood. Sulfa drugs can be used to relieve the carrier state but according to army studies, this is only a temporary measure lasting from two to three weeks. Meningococcus antitoxin and antiserum furnished by the Division of Preventable Diseases.

Meningitis, Hemophilus Influenzæ Type B

Incidence in Minnesota: 30 cases, 22 deaths in 1942. 1943 figures not complete.

Diagnostic tests: Send spinal fluid by quickest method to Division Laboratories where it will be typed to determine whether Hemophilus Influenzæ Type B is the causative organism. This is a very rapid method similar to the Neufeld typing in pneumonia. Since influenzal meningitis is highly fatal when not treated (95 per cent) early, *night service* will be given if necessary.

Active Immunization: None

Passive Immunization: None

Treatment: A combination of sulfa drugs (sulfadiazine is now usually the drug of choice) together with Anti-Hemophilus Influenzæ Type B serum is used. The same is prepared only by Squibbs and directions are so clearly given that in the opinion of the committee it is not essential to give detailed directions here for the administration of the sulfa drug or the antiserum. It should be added that the committee realizes that many country practitioners are in no position to make sugar determinations on spinal fluid as suggested in the printed directions; the amount of sugar present being used as an index for the amount of Anti-Hemophilus Influenzæ B serum which is to be given. However, the average dose for a child two years or under is two vials of the antiserum plus sulfa drugs as directed.

Prevention: Not understood. Hemophilus Influenzæ Meningitis is a disease of infancy, as around 80 per cent occurs in children under two years of age. The epidemiology is not understood but present knowledge would indicate that since Hemophilus Influenzæ is a common inhabitant of the upper respiratory tract in healthy persons that the high occurrence of the disease in small children is a matter of lack of resistance and perhaps to a lesser extent variation in virulence of the organism. Anti-Hemophilus Influenzæ Type B serum, distributed by the Division of Preventable Diseases.

Meningitis, Pneumococcus

Incidence in Minnesota: 11 cases reported in 1943 with 4 deaths.

Diagnostic Tests: Send spinal fluid to Division Laboratories for typing. Telephonic report will be given, and night service if necessary.

Active Immunization: None

Passive Immunization: None

Treatment: The treatment with sulfa drugs is as outlined under Meningococcus meningitis. At the same time, the specific serum should be given by the intravenous route, beginning with 100,000 units and more is given if the patient does not respond. Penicillin, if it can be procured, is given as outlined under Meningococcus meningitis.

Prevention: This disease often appears as a complication of pneumonia or middle ear infection, and meningitis in some instances may be avoided if the primary infections are treated early and adequately.

Pertussis (Whooping Cough)

Incidence in Minnesota: Variable but not known, as not well reported; 3,470 cases with 28 deaths reported in 1943.

Diagnostic Tests: Cough plate or nasal swab methods are the ones of choice if laboratory facilities are available. *These methods require experience and fresh media.* Positive cultures may be expected in 70 to 90 per cent of the cases in the catarrhal period. A single negative culture does not rule out the disease. It has been proven that cultures give good results if shipped from a distance, but our Laboratories do not have sufficient staff to carry out this work. Of important diagnostic value also is a leucocytosis of from 15,000 to 40,000 per c.c. with a progressive increase in the absolute number of lymphocytes. This occurs in the late catarrhal or early spasmodic stage.

Active Immunization: This should be especially

stressed in whooping cough as there is definite evidence that it does in some instances prevent the disease and in many others it lightens the attack. Since the majority of pertussis deaths occur in children under one year, immunization should be begun early, preferably at six months. It is to be hoped that soon a vaccine will be developed that will be effective earlier than six months.

Passive Immunization: Best results are obtained when Pertussis Hyper-Immune Serum is given early in the incubation period. A dose of 20 c.c. is advised in children under four years of age and the same dosage in children four years and older.

Treatment: Pertussis Hyper-Immune Serum appears to be of value in the treatment of the disease, if administered early. The serum should be given in 20 c.c. amounts, preferably intravenously at two- and three-day intervals until three doses have been given. If there is no improvement after the third injection, it is questionable whether further injections will be of benefit. If improvement follows the second or third dose, one or two additional doses probably should be given at five- to seven-day intervals in order to prevent a relapse of the disease.

Prevention: Early immunization should be carried out. It is realized that more atypical cases will occur with a highly immunized child population, but since the disease is not well reported, and therefore not placed under proper control measures, the committee is of the opinion that a well immunized population will mean a great decrease in deaths and cases. Pertussis Vaccine "Sauer" for active immunization is distributed by the Division of Preventable Diseases for use in children under two years. Pertussis Hyper-Immune Serum for passive immunization is distributed by the Division of Preventable Diseases for children under eighteen months of age.

Pneumonia (Pneumococcus)

Incidence in Minnesota: 2,345 cases with 690 deaths reported in 1943.

Diagnostic Tests: Send sputum or gastric contents in infants to Preventable Disease Laboratories for typing if local facilities are not available. Typing is not as important as a few years ago, for since the advent of sulfa drugs many patients respond without the use of serum. In other words, typing is usually not an emergency. Blood cultures should be taken if local laboratory facilities are available, but our Laboratories are carrying on very little blood culture work since the organisms do not survive well in shipped cultures. *Warning:* It is often difficult to type pneumococcus after sulfa drugs have been given, although in cases of necessity typing should be attempted.

Active Immunization: Has been tried but not successful to date.

Passive Immunization: None

Treatment: Sulfadiazine at present is apparently the drug of choice. The initial adult dose should be 2 to 4 gms. by mouth followed by one gm. every four hours day and night until the infection is under control. (In children dosage should be reduced according to weight). The latter dosage is usually continued for twenty-four to seventy-two hours after the temperature has reached normal. The drug may be discontinued then or cut to half the latter dose, or the same amount can be continued every six to eight hours instead of every four hours. As a rule it is safe to discontinue the drug twenty-four hours after half doses. In severe infections with complications, it is advisable to give full doses of drug for five to six days after the temperature reaches normal. If the patient does not respond to sulfa drugs in twenty-four to forty-eight hours, or is unable to take sulfa drugs, serum should be tried. Although many statistics have been published, the committee wishes to emphasize that a final answer to the sulfa versus serum question cannot be given at present. Serum should be given intravenously and in adequate doses. In an adult twenty-five to thirty-five years of age, 100,000 units should suffice in an uncomplicated pneumonia. The required dosage increases with age, with delayed treatment, with extensive involvement, bacteremia, and pregnancy.

Prevention: Prevention if possible of upper respiratory infections due to undue exposure, fatigue, et cetera. Pneumococcus Pneumonia Serum distributed by the Division of Preventable Diseases.

Smallpox

Incidence in Minnesota: No cases in 1943. Cases may be expected at any time if the public is not continuously impressed with the value of immunization since vaccination is not compulsory in this State.

Diagnostic Tests: There is no practical test which may be used in the ordinary laboratory. If the physician is in doubt as to the diagnosis, the patient should be vaccinated if there is no history of successful vaccination.

Active Immunization: The method of choice is the virus of cowpox preserved by glycerination of lymph from inoculated calves. There is not sufficient experience in epidemics with the tissue culture method of making vaccine of Rivers and Goodpasture to warrant advising its use as a standard procedure at present. *Babies* should have the first successful vaccination by the first birthday. Vaccination should be repeated every five years or more often if an epidemic occurs.

Passive Immunization: None

Treatment: No specific biologic.

Prevention: Successful vaccination of every baby by the first birthday. Repeated vaccination every five years and more often during epidemics. Glycerinated smallpox vaccine distributed by the Division of Preventable Diseases.

Tuberculosis

Incidence in Minnesota: 2,345 cases with 690 deaths in 1943 (decreasing).

Diagnostic Tests:

1. All types of body fluids, including sputum, gastric contents, pleural fluid, spinal fluid, et cetera, are examined in the Preventable Disease Laboratories. Do *not* send specimens of voided urine. If possible, specimens taken from the ureter should be sent, but if this cannot be done, catheterized specimens collected by sterile technique will be accepted. In a suspected case

of tuberculosis, several microscopic examinations should be made of morning sputum if patient is raising, and these should be made before cultures are requested. If patient is not raising or is not coöperative gastric contents should be collected. (Special directions will be sent upon request for collection and shipping of such specimens). If typical acid-fast organisms are found on macroscopic examination of sputum, it is not usually considered necessary to carry out cultures or animal tests. If atypical organisms are found or organisms are found in other body fluids in patients in whom there have been no previous positive laboratory findings, virulence tests are always carried out in animals. It is important to use bottle furnished by our laboratories for pleural fluid specimens so that as much of the clot will be retained as possible. This is mentioned because we receive many pleural fluid specimens in Wassermann containers which no doubt accounts for missed diagnoses at times.

2. Tuberculin Test: 0.1 c.c. of a 1:1,000 dilution of old tuberculin applied intradermally is probably the most widely used test in this country. Purified protein derivative is the most accurate test material available, but it is much more expensive. Some physicians prefer to begin with a 1:10,000 dilution of old tuberculin as it is a little safer in case there should be an occasional severe reaction with the 1:1,000 dilution. However, the 1:10,000 dilution is used as a rule only in selected cases. The 1:100 dilution should be used with caution. The tuberculin test is usually read in forty-eight hours but should not be considered negative until seventy-two hours have elapsed. It is well known that in rare instances the tuberculin test is negative in active tuberculosis.

3. The Patch test has been quite widely advertised the past few years as a more convenient method than the tuberculin (Mantoux) test. It is more expensive. There are several obvious reasons why it may not be as accurate as the Mantoux test; if the patient is a child or irresponsible, the patch may not be left in place. It does not work well on a dry skin; there is always the possibility that it may not penetrate through different types of skins and therefore would have possibilities of inaccuracies which the intracutaneous test does not have.

Active Immunization: B. C. G. should not be recommended at the present time.

Passive Immunization: None

Treatment: No specific biologic to date. Old tuberculin 1-1,000 and 1-10,000; 1-100 for special cases, distributed by the Division of Preventable Diseases.

Typhoid Fever

Incidence in Minnesota: 15 cases with no deaths in 1943 (decreasing).

Diagnostic Tests:

1. Isolation of the organism is the method of choice and is becoming more important with the great increase in vaccinated persons. Blood cultures are usually positive from the first few days until about the beginning of the second week in about 90 per cent of cases. Later the organism can be isolated usually from the stools and occasionally from the urine. If stools are negative, repeated specimens should be done. The above work is done by the Preventable Disease Laboratories and outfits are furnished.

2. Agglutination tests: These tests should be carried out but may be very difficult to interpret if the patient is an adult. Specimens should be repeated as a rise in titre is usually significant. An agglutination titre of 1:80 with typhoid bacilli or above in a child is usually significant. One must always consider that the patient may be suffering from a related infection such as paratyphoid, enteriditis, bacillary dysentery, or some member of the salmonella group.

Active Immunization: Triple typhoid vaccine made according to Army medical school standards is the method of choice rather than straight typhoid vaccine, i.e., vaccine should be used in which both paratyphoid organisms as well as typhoid are incorporated. This is becoming more important since it appears that there is more increase in salmonella infections in the United States and triple typhoid vaccine should give some protection against the salmonella group. Because of the low incidence of typhoid and paratyphoid in Minnesota, general vaccination is not advocated. The first immunization to typhoid and paratyphoid fever consists of three doses of triple vaccine given subcutaneously. In the past few years experimental work has demonstrated that after the first immunization, one step-up dose of 0.1 c.c. intracutaneously every two years is as effective as three full doses of vaccine.

Passive Immunization: None

Treatment: No specific biologic successful.

Prevention: Sanitary control of water supplies and sewage disposal, use of pasteurized milk, control of temporary and chronic carriers.

Triple and plain typhoid vaccine distributed by the Division of Preventable Diseases.

ETERNAL VIGILANCE

This is the time of year when the commoner communicable diseases are apt to dominate the medical scene. Johnny breaks out with a rash; Mary has a suspicious parotid swelling; Jimmy's throat is red and sore; Dad has a chest cold that will bear watching for possible pneumonia. Suddenly these troubles bubble up; furiously they boil; generally they cool with equal rapidity. But there is one common communicable disease that seldom flaunts a rash, that does not start with a high fever, that fails to herald its approach by means of sore throat, overwhelming malaise, violent headache or major digestive upset. That disease is tuberculosis, and the time of the year to watch out for it is exactly twelve months long!

CLINICAL-PATHOLOGICAL CONFERENCE

MINNEAPOLIS GENERAL HOSPITAL

J. B. Arey, M.D., Pathologist

Presentation of a Case

DR. GOLTZ: The case is that of a seventy-six-year-old Jewish male admitted to Minneapolis General Hospital, January 26, 1944. The history was obtained with great difficulty because of his inability to speak English. The day prior to admission he experienced sudden severe pain in the chest and abdomen with rather severe dyspnea. These complaints increased in intensity, and he was admitted to the hospital at 9:00 P.M. January 26, 1944. No definite localization of the pain to one side or another could be determined; there was no radiation to the shoulders or arms, and no definite aggravation on respiration was remarked.

Past history revealed several previous admissions to the hospital with complaints irrelevant to the present admission. On one occasion it was noted that he had suffered from bronchial asthma for a number of years with resultant emphysema. His blood pressure in 1941 was 170/88.

Physical examination on the last admission revealed a rather emaciated old man with a blood pressure of 176/100, pulse 96, temperature 98.4 and respirations 28. No orthopnea was noted, but the respirations were distinctly labored and he complained of considerable pain in his chest (not localized). Physical examination was essentially negative except for the chest. There was a loud expiratory groan heard throughout the chest and obscuring the physical findings on auscultation. No abnormalities in the breath sounds could be noted, and occasional inspiratory râles were audible over an area in the left lower chest anteriorly and posteriorly. Percussion revealed a resonant note on both sides, with a somewhat diminished note over the aforementioned area in the left lower chest. The cardiac rhythm was regular. There was a short diastolic murmur at the base.

Laboratory examination showed a negative Rytz and Kline test. The hemoglobin was 87 per cent, white blood count 22,900 with 84 per cent neutrophiles, 14 per cent lymphocytes and 2 per cent monocytes. The urinalysis showed nothing of note. X-ray (not read until after the patient's death) showed a prominent left ventricle with the heart somewhat displaced to the left. There was a right pneumothorax (60 per cent collapse of the right lung), and a suggestion of fluid at the left base. The lung field on the left was clear.

The patient was treated with morphine grains 1/6 and atropin grains 1/150, and an oxygen mask. He continued to suffer from progressive dyspnea, became very cyanotic, his pulse became irregular and he died at 11:35 A.M. January 27, 1944, in spite of stimulants.

DR. TAYLOR: The pertinent autopsy findings were largely limited to the chest. On opening the chest, air was heard escaping from the right pleural cavity. The mediastinum was shifted slightly to the left. The right lung was flattened against the mediastinum at all points except the apex, where a group of fibrous, band-like adhesions between the parietal and visceral pleura prevented collapse of this area. No air could be detected escaping from the left pleural cavity. The latter contained approximately 400 c.c. of frank blood and clots. There was a clot 6 x 4 x 4 cm. in the interlobar fissure, somewhat adherent to the adjacent visceral pleura. The parietal pleura was intact on both sides.

Each lung weighed 570 grams. There were a number of subpleural emphysematous blebs, up to 2 to 3 cm. in diameter, on the surfaces of both lungs. On incising these blebs, considerable portions of the adjacent pulmonary parenchyma would collapse. The exact source of the right pneumothorax could not be found. Section of the right lung showed almost complete atelectasis, with the exception of a small area at the apex. There was atelectasis of the inferior portion of the left upper lobe (adjacent to the aforementioned clot in the interlobar fissure). The remainder of the left lung showed nothing of note. The bleeding point could not be determined. No definite emphysema was visible in the parenchyma of either lung. The parietal pleura was intact on both sides.

The heart weighed 310 grams. Except for slight calcification of the base of the aortic valve and moderately severe sclerosis of the coronary arteries, it showed no significant abnormalities.

The gall bladder was reduced to a thickened, fibrous sac, 2 x 5 cm. containing three stones and a small amount of bile. Distal to the tip of this sac was a bulbous fibrous tissue mass containing cholesterol crystals. This was bound to the surface of the liver by dense fibrous adhesions, and apparently represented the fundus of the gall bladder. The remainder of the organs showed no significant abnormalities.

Microscopic Findings

DR. AREY: Here is a section of the left lung taken from the interlobar fissure in an attempt to find the source of the hemorrhage. Note the rather extensive bronchiectasis, with dilated bronchi filled with purulent material. There is extensive chronic inflammatory infiltrate in the walls of these bronchial cavities. Adjacent to the dilated bronchi is a chronic pneumonia, such as is found so commonly in bronchiectatic lungs. Here is another section of the left lung taken from the same region. There is considerable hemorrhage in the alveoli, with atelectasis adjacent to this. Although this is un-

doubtedly near the point of origin of the left hemothorax, we have been unable to definitely demonstrate the point from which the hemorrhage came.

These sections of the right lung all show a similar structure. Note the marked atelectasis, with complete collapse of the alveolar septa and resultant disappearance of the alveolar spaces. There is nothing to suggest tuberculosis in any of these sections, nor are we able to demonstrate any emphysema.

Here is a section of the gall bladder. There is extensive fibrosis and inflammatory infiltrate in the wall, as well as a large number of cholesterol crystals. About the latter is considerable foreign body reaction, with large numbers of giant cells.

Discussion

DR. AREY: I would like to say a few words about spontaneous pneumothorax in the apparently healthy individual. It should be emphasized that I am referring to this condition in the previously healthy individual, not as a complication of trauma, tuberculosis or chronic emphysema. I have been unable to find any report as to the incidence of spontaneous pneumothorax following either tuberculosis or emphysema. However, most authors at the present time seem to feel that spontaneous pneumothorax occurs more frequently in the previously healthy individual than as a complication of tuberculosis or emphysema. This is in distinct contrast to the figures given in the older literature, when 70 to 90 per cent of the cases were considered tuberculous in origin.

The pathogenesis of this lesion is interesting. Kjaergaard and Ornstein and Lercher agree that the pneumothoraces result from the rupture of a subpleural emphysematous bleb, this bleb having a check-valve mechanism which prevents the release of its air on expiration, but allows its filling on inspiration. This check-valve may be formed either by scar tissue or by local emphysematous pulmonary parenchyma.

Ornstein and Lercher have well demonstrated the reason for the frequent occurrence of the subpleural blebs in the apices. By means of repeated x-rays, they show that a large portion of the air in the lungs is forced into the apices in coughing and in severe exertion associated with closing of the glottis. This rushing of air into the apices may result in rupture of the superficial alveolar septa, with the formation of emphysematous blebs in the areolar layer of the pleura. The additional factor of the check-valve mechanism has already been mentioned.

As to the incidence of spontaneous pneumothorax in the apparently healthy individual, a few figures are available. Santos and Tanchanco found an incidence of .11 per cent in 50,000 chest examinations. Kjaergaard was able to collect fifty-one cases in Denmark over a period of 20 years. Ornstein and Lercher reported fifty-eight cases in 1942. Stein, McConkie and Kuehn reported five cases in 1943. Thus it would seem that the entity is of suffcient frequency to warrant careful clinical consideration.

All authors agree that the incidence of spontaneous pneumothorax in the healthy individual is more frequent in the younger age groups, usually in the second, third and fourth decades. There is a definite preponderance of men over women, some authors giving a ratio as low as two to one, and Ornstein and Lercher finding only two of fifty-eight cases in women.

The characteristic symptoms are sudden severe pain in the chest associated with dyspnea. The pain is aggravated by respiration, and is usually on the affected side, may radiate to the shoulder and arm. Abdominal pain associated with rigidity may rarely occur, simulating a perforated gastric ulcer. The dyspnea is said to be originally reflex in character, later may be the result of actual respiratory embarrassment.

Other symptoms occur less frequently than the cardinal symptoms of pain and dyspnea—cyanosis, cough (rarely associated with blood-tinged sputum), palpitation, fainting, pallor and vomiting may occur.

The physical findings depend upon the amount of air in the pleural cavity, and with larger amounts are quite characteristic. With considerable air in the pleural cavity, there is splinting of the affected side and bulging of the interspaces. Tactile and vocal fremitus are decreased to absent, a hyperresonant note is present on percussion, and the breath sounds on the affected side are decreased or absent. With small amounts of air the findings may be absent or limited to the apex. These small pneumothoraces may only be discovered on x-ray examination, the x-ray preferably being taken in the expiratory position.

Other types and complications of spontaneous pneumothorax are reported. Chronic pneumothorax may be present over as long a period as twenty years (Kjaergaard). It is characterized by very slight subjective symptoms associated with a rather marked pneumothorax on x-ray examination. These cases may be erroneously diagnosed as situs inversus.

Hemopneumothorax is a very serious problem, and fortunately is not common. The physical findings are those of a spontaneous pneumothorax associated with fluid in the pleural cavity and signs of internal hemorrhage. The latter usually do not appear for several hours after the rupture. These cases are especially prone to simulate intra-abdominal conditions.

Bilateral pneumothorax is another serious complication. These probably all start with unilateral involvement, but the opposite side may be affected while the original lung is still collapsed. These cases may require immediate aspiration of air from the pleural cavity (preferably the side originally affected) to prevent immediate suffocation.

Alternating pneumothorax consists of those cases in which a pneumothorax occurs on the opposite side after recovery from a previous spontaneous pneumothorax. These cases are rare, the second attack usually occurring some months or about one year after the first attack.

Recurrence of spontaneous pneumothorax is not rare. Kjaergaard gives an incidence of about 20 per cent recurrences, and Ornstein and Lercher 29.8 per cent. They report two cases that had eight attacks, either the same or the opposite lung being affected. In over 50 per cent of Kjaergaard's recurrences, the subsequent pneumothorax appeared within one year.

The differential diagnoses of spontaneous pneumothorax include cardiac conditions, pneumonia, pleurisy and perforated abdominal viscus. The differential diagnosis can usuallly be made by a careful history and physical examination. X-ray is of invaluable aid, and may be the only method of making a diagnosis with small pneumothoraces. The film should preferably be taken in the expiratory position, as this more readily reveals small amounts of air in the pleural space.

The treatment of spontaneous pneumothorax is usually confined to bed rest, possibly with sedation. Reexpansion of the lung will usually occur within four to six weeks. In severe forms, as bilateral tension pneumothorax, it may be necessary to immediately aspirate air from the pleural cavity in order to prevent suffocation. As mentioned, aspiration should be begun on the side first affected in bilateral pneumothorax.

The prognosis in these cases is as a rule excellent. Kjaergaard mentions only six deaths collected from the literature. One of these was a tension pneumothorax, four hemopneumothoraces, and one a bilateral pneumothorax. Kjaergaard followed forty-nine cases over a number of years and only one subsequently developed pulmonary tuberculosis, evidently a later infection. Of Ornstein and Lercher's fifty-eight cases, three subsequently developed pulmonary tuberculosis. The presence of adhesions or fluid demonstrable on physical ex-

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CLINICAL-PATHOLOGICAL CONFERENCE

ST. LUKE'S HOSPITAL—DULUTH

Arthur H. Wells, M.D., Pathologist

Presentation of a Case

DR. J. R. MANLEY: This thirty-two-year-old housewife, gravida 0, with a blood pressure of 150/80 and 4 plus albumin in the urine was delivered spontaneously of a full-term stillborn after seven hours of labor. An episiotomy was repaired and the placenta expressed without difficulty with an estimated total loss of from 800 to 1,000 c.c. of blood. At first the uterus did not contract properly but after pituitrin and ergotrate this condition soon appeared to be corrected. However, there was a slow continuous oozing of blood from the uterus. Forty-five minutes postpartum the pulse was 100 and weak, blood pressure 80/60 and the patient's color was poor. Oxygen therapy was started and one unit (250 c.c.) of plasma was given at this time. One hour postpartum the oozing was continuing so the uterus was packed and a unit (500 c.c.) of "bank" blood was given. At an hour and fifteen minutes postpartum the continuous oozing was again noted and two more units of "bank" blood were given. The uterus was repacked on two occasions to no avail. It was noted that there were no blood clots passed and that blood collected in a basin in the delivery room stood two hours without clotting. The patient died four hours postpartum, clinically as the result of exsanguination.

Autopsy Findings

DR. A. H. WELLS: There were moderate evidences of toxic changes in the liver, myocardium, spleen and kidneys. The liver had many tiny hemorrhages on its unusually yellow cut surface. There were three small lacerations in the cervix which were considered by the obstetrician to be the result of packing the uterus on the third occasion. A serious depletion in blood volume was noted.

Microscopic Study.—There were moderately extensive hemorrhages and degenerative changes in liver cells in the periportal areas of the liver typical of changes occurring in eclampsia. Prothrombin time taken 1.5 hours postmortem was found to be 0.1 per cent of normal. At this time the platelet count was 90,000 and a check count was 100,000. The blood clotting time was 20 minutes. Fibrinogen content of plasma was not measured.

It is my theory that this patient bled to death following a spontaneous normal delivery as the result of a depletion of blood prothrombin consequent to the inability of her liver to manufacture prothrombin. The liver had moderately extensive changes pathognomonic of eclampsia.

DR. R. J. MOE: Eclampsia is toxemia with convulsions and this patient apparently had no convulsions.

DR. A. H. WELLS: I should have said the liver changes are pathognomonic of toxemia of pregnancy. Convulsions or eclampsia of course are frequent terminal manifestations of this condition.

DR. F. R. PETERSON: Did the patient receive vitamin K prior to labor?

DR. J. R. MANLEY: She received hykinone one week before delivery. It is entirely possible that the liver could not convert it to prothrombin.

DR. G. J. HRUSKA: Does blood stored in the icebox provide prothrombin?

DR. A. H. WELLS: Several investigations have shown that prothrombin, platelets and fibrinogen disappear quite rapidly from stored blood. Fresh blood alone could be counted upon to supply prothrombin in a patient with a badly damaged liver. Stored blood provides simply red blood cells, blood proteins, salts and fluid.

DR. F. R. PETERSON: How frequent is this type of bleeding dyscrasia?

DR. A. H. WELLS: As you well know severe diffuse liver injury in a variety of conditions will at times lead to bleeding from various parts of the body. This bleeding may be theoretically due to the inability of the liver to manufacture either prothrombin or fibrinogen. I have contacted J. R. McKelvey, A. J. Quick, I. Davidsohn, and A. S. Wiener and none of these men have heard of toxemia of pregnancy causing a bleeding dyscrasia.

Since the death of this patient we have routinely run prothrombin time and bleeding time tests on patients with toxemia of pregnancy. To date there have been eight such patients most of whom had received Vitamin K and all of whom were in the normal range for these tests, except in one instance. Dr. Braverman, will you give us a brief review of this patient's history?

DR. N. J. BRAVERMAN: This thirty-six-year-old para II housewife had followed a normal prenatal course until one week before her death. She then rapidly developed severe headache, epigastric pain, dizziness, blurred vision, edema of legs, vomiting, albuminuria grade IV, and many red blood cells in the urine. Her hemoglobin was 13 grams per 100 c.c., white blood cells 21,500, red blood cells 4,280,000, and the differential blood count had 89 per cent neutrophiles. There was a systolic cardiac murmur and an occasional uterine contraction at the time of admission to the hospital. The prothrombin time was 9 per cent normal or 124 seconds. Therapy for toxemia of pregnancy including morphine sulphate and magnesium sulphate given intravenously was started. Five minutes before death the blood pressure was 210/140. Her respirations suddenly became hoarse and cyanosis developed. The intern, Dr. Hruska, watched a very rapidly developing swelling in the neck mainly to the left of the midline. He tried

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CASE REPORT

RECURRING RETROPERITONEAL FIBROMYXOSARCOMA

CLAUDE F. DIXON, M.D., and JAMES L. VADHEIM, M.D.
Rochester, Minnesota

THE surgeon is often confronted with the problem of whether or not to attempt the removal of a seemingly inoperable malignant lesion. Every now and then he is rewarded for his efforts by an excellent result in what was apparently a hopeless situation. We wish to present just such a case in which a retroperitoneal fibromyxosarcoma which was adherent to the vena cava was removed and the patient lived comfortably for eight years, only to return with a recurrence in the identical region. The recurrent lesion was also adherent to the vena cava but again it was possible to remove the sarcoma and again the patient obtained an excellent result.

The patient, a white man, aged fifty-five years, was first registered at the Mayo Clinic in 1935. At that time he gave a history of gradually increasing weakness of five months' duration, a loss of about 12 pounds (5.4 kg.) and a mass in the right side of his abdomen which he had discovered three weeks prior to examination. One week prior to examination he was forced to give up his work because of weakness. Examination revealed a moderately well-nourished white man, who had a hard nodular mass the size of a grapefruit in the right side of the abdomen. The mass was freely movable and could be separated from the liver and kidney. Intravenous urograms were normal. On August 27, 1935, exploration was carried out through a right rectus incision. The colon was reflected medially and a tumor the size of a large grapefruit was removed from the region of the right kidney. The procedure was extremely difficult as the growth was firmly adherent to the vena cava and it was necessary to leave three clamps on the border of this vessel to control bleeding following the resection. These clamps were loosened on the fourth postoperative day and subsequently removed on the sixth and seventh postoperative days. The pathologist reported a fibromyxosarcoma 15 cm. in diameter and weighing 880 gm. The postoperative course was uneventful. The patient was dismissed from the hospital on the fourteenth day and after a course of roentgen therapy went home.

Following dismissal the patient continued to get along well until February, 1943, when he again noticed weakness and a loss of appetite. One week prior to readmission he again noticed a mass in the righ side of his abdomen. He was examined on March 17, 1943, at which time he again exhibited a mass the size of an orange in the right middle portion of the abdomen. His weight was 24 pounds (10.9 kg.) less than his usual weight and he appeared to be very weak. The mass at that time was freely movable and did not seem to be attached to the liver or kidney. On April 2, 1943, exploration was performed through a secondary upper right rectus incision. Just below the hepatic flexure of the colon was a hard irregular tumor about twice the size of an adult's fist. The tumor involved the mesentery and ascending colon and for that reason a resection of the right portion of the colon was performed. The terminal ileum, the cecum, and ascending colon and two-thirds of the transverse colon were removed and because of the patient's poor condition it was deemed advisable to conclude the procedure as an exteriorization over a clamp. The dissection again was extremely difficult as the tumor was adherent to the vena cava for some distance and it was necessary to resect a portion of the anterior wall of the vena cava in three separate areas. These defects were closed with double chromic catgut ties and only a minimal amount of bleeding occurred. The pathologist reported 25 cm. of ileum, appendix, 25 cm. of cecum and colon and a fibromyxosarcoma measuring 13 by 8 by 5 cm. and invading the ascending colon (Fig. 1). No glandular involvement was found.

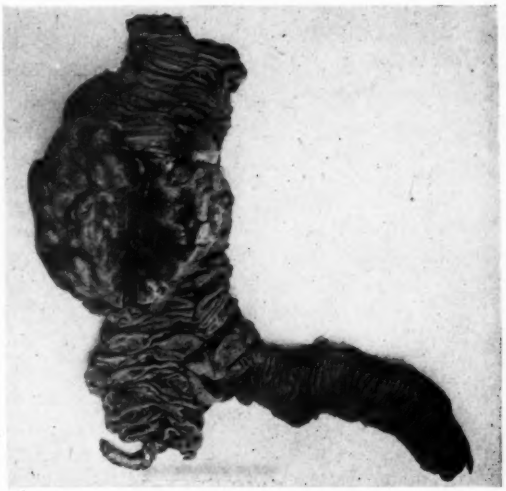

Fig. 1. Fibromyxosarcoma of the ascending colon.

The postoperative course was uneventful and the patient was dismissed from the hospital on the fifteenth postoperative day. Subsequently, the colostomy spur was destroyed with clamps and the colonic stoma closed. At the time of dismissal the patient appeared to be in excellent condition.

From the Division of Surgery, Mayo Clinic (Dixon) and the Mayo Foundation (Vadheim, Fellow in Surgery), Rochester, Minnesota.

HISTORY OF MEDICINE IN DODGE COUNTY

BY JAMES ECKMAN
Rochester, Minnesota

and

CHARLES E. BIGELOW, M.D.
Dodge Center, Minnesota

(Continued from February issue)

Dr. William M. Edgerton (1870-1939) was born at Mantorville in Dodge County on May 27, 1870,[365] the son of Alonzo Jay Edgerton of New York (1827-1896) and Sarah Curtis Edgerton, of Connecticut.[366] Doctor Edgerton's parents had settled in Mantorville in the summer of 1855,[366] when the town was nothing more than a cluster of settlers' shanties. The father, a lawyer, became a Minnesotan of some renown. He was a member of the Minnesota State Senate in 1858 and 1859, was awarded the rank of brevet brigadier general in the War of the Rebellion, and was United States Senator from Minnesota from March 12 to October 30, 1881.[367] Later he was chief justice of the Supreme Court of the Territory of Dakota.

Young Edgerton was educated in the public schools of Mitchell in South Dakota, and became a student at the South Dakota State College at Brookings, where he began the study of medicine with Dr. Granville J. Coller (1854-) as preceptor. He was graduated from the University of Minnesota College of Medicine and Surgery in 1896, and was licensed to practice medicine in Minnesota on June 9 of the same year.[40] In the same summer[156] he located at Claremont in Dodge County, where he remained for about two years. On December 26, 1896, he was married to Miss Alta Andrews (1871-1934) of Faulkton, South Dakota.[365] In 1898 he was licensed to practice medicine in South Dakota, and he settled at Faulkton. On January 13, 1905, Doctor Edgerton was nominated by Dr. Hiram E. McNutt (1848-1923) of Aberdeen to be an examiner for the Equitable Life Assurance Society of the United States, and recommended for the position by Dr. Francis M. Crain (1857-1934) of Redfield and others.[368] Doctor Edgerton had been local surgeon at Faulkton for the Chicago and Northwestern Railway Company, superintendent of the Faulk County Board of Health and a United States pension examiner. The appointment was made, and Doctor Edgerton remained in the employ of the assurance society at Faulkton until 1914, when he moved to Merriam Park in Ramsey County, Minnesota, where he served as an examiner from December 24, 1914, until July of 1920. In that year he moved his residence to Minneapolis, but maintained his office at Saint Paul. On July 29, 1920, he became an alternate examiner for the company at Saint Paul, and on July 1, 1921, he was appointed to be a medical referee of the company, in charge of all examiners in Minnesota, North Dakota and South Dakota.[368] He held this post until he retired on November 1, 1938, and he died at Minneapolis on August 4, 1939, of coronary sclerosis at the age of sixty-nine years.[369, 370]

Dr. John Andrew Sorg (1869-1898) was a classmate of Dr. William M. Edgerton (1870-1939) and Dr. Lewis L. Mayland (1871-) in the University of Minnesota College of Medicine and Surgery, from which he was graduated in 1896. Doctor Sorg was born in Denmark Township, Washington County, Minnesota, the son of Michael Sorg and Emma Traeger Sorg.[371] Both his parents were natives of Germany. The young man was educated in the rural schools of Washington and Dakota Counties, and on June 7, 1889, was graduated from the Hastings High School. He then taught school for two years in Dakota County and one year in Washington County. During summer vacations he worked in Skinner's Drug Store in Minneapolis, and at some time between 1889 and 1892 he was graduated from the old Minnesota Institute of Pharmacy[371] conducted in Minneapolis by Charles W. Drew, M.D., Ph.D. (1858-1920), who had been assistant to the chair of chemistry in the old Minnesota College Hospital,[91,92] and city physician of Minneapolis in 1884 and 1885.[336]

Doctor Sorg was graduated as a physician in 1896, and was licensed to practice medicine in Minnesota on June 9, 1896, receiving License No. 712.[40] At about that time he came to Kasson in Dodge County, but he probably did not remain there long, for Welch[371] believed Doctor Sorg was settled in North Dakota by 1896. He was licensed to practice medicine in North Dakota on April 14, 1898,[158] and at the time he gave his residence as Ellendale in Dickey County, although Welch[371] has said that he also practiced in Kulm in La Moure County. Doctor Sorg died of pneumonia in Ellendale on May 4, 1898, and was buried in Lakeside Cemetery in Hastings, Minnesota. He was a member of the Odd Fellows, Ancient Order of United Workmen, Woodmen of the World and the Knights of Pythias. He was never married. Welch[371] reported that Doctor Sorg was very fond of singing, and that as a teacher he was instrumental in getting young people to attend high school and college if it was at all possible for them to do so.

Dr. George Ranson (1871-1899), the eldest son of Dr. Stephen W. Ranson (1843-1904) and Mary Elizabeth Foster Ranson of Dodge Center,[233] was born in Dodge Center on July 11, 1871. He was reared in the town and was graduated from the Dodge Center High School. He attended Hamline University in Saint Paul for a while, then entered the University of Minnesota College of Medicine and Surgery, from which he was graduated in 1895. He was licensed to practice medicine in Minnesota on June 11, 1895, receiving License No. 564.[40] After he had completed a year's internship at Saint Joseph's Hospital in Saint Paul, Doctor Ranson returned to Dodge Center to practice medicine with his father. In March of 1898 he bought the practice of the late Dr. Daniel B. Collins (1848-1898) of Saint Peter who had died on February 14, and he settled in that town. In January of 1899 he was married to Miss Mary Jones of Saint Paul.[372] Doctor Ranson had been in Saint Peter for only a little more than a year when suddenly, while apparently in excellent health, he collapsed and died within the hour, on June 8, 1899. He was only twenty-eight years old at his death.

Dr. Lewis L. Mayland (1871-), who came to Hayfield in Dodge County in December of 1896, was born on a farm in Goodhue County, Minnesota, on October 13, 1871, the son of Lars A. Mayland (1826-1893) and Uni Thorsnes Mayland (1829-1906).[160] His father, a native of Norway, was a farmer. His mother also was a native of Norway. The boy attended the public schools near his home until he was sixteen years old, and then spent one year

at Luther College in Decorah, Iowa, and the next year in Carleton College at Northfield, Minnesota. He taught school for two years in northern Minnesota, and then entered the University of Minnesota in the fall of 1893. He was graduated as a physician in June of 1896, and in his graduating class were Dr. John A. Sorg (1869-1898) and Dr. William M. Edgerton (1870-1939), both of whom have figured in the history of medicine in Dodge County. Doctor Mayland was licensed to practice medicine in Minnesota on June 9, 1896, receiving License No. 692.[40]

During the summer of 1896 Doctor Mayland assumed the practice of his brother, Dr. Martin L. Mayland (1868-1937), at Faribault, and for a while in the fall of that year he was associated with Dr. Joseph A. Gates (1870-1922) of Kenyon, who was an old friend of his. At this time Dr. Eric O. Giere (1868-1942) was preparing to leave Hayfield in Dodge County. He communicated with Doctor Mayland and asked him to take his place at Hayfield. By December of 1896, as mentioned earlier herein, Doctor Mayland was well established at Hayfield, where he was elected mayor and where he became local surgeon for the Chicago and Great Western Railway Company.[160] On May 12, 1897, Doctor Mayland was married to Miss Ranveig S. Bugge (1874-1942), a native of Wanamingo, Minnesota. In the summer of 1899 he moved to Red Wing in Goodhue County, and in the spring of 1902 he became surgeon to a logging company at Bagley in Clearwater County, Minnesota.

In about 1908 Doctor Mayland removed to Montana, where he was licensed to practice medicine on October 15, 1911.[320] In 1913 he settled in Great Falls in that state, where he is at the present writing (1943).

Dr. Elmer Ellsworth Harrison (1866-1934) was born in Freeborn County, Minnesota, on March 20, 1866, the son of John Harrison and Mary Pierce Harrison.[372] He was one of three sons and three daughters. His father was a farmer, a native of Liverpool, England, and his mother was born in Cattaraugus County, New York. The young man's early years were hard. He had to earn the money which would enable him to attend the New Richland High School, and this he did by working as a farm hand.[373] When he had been graduated from the New Richland High School he attended the Mankato State Teachers' College, from which he was graduated in 1892. He became superintendent of a school at Paynesville, in Stearns County, and there he managed to accumulate some money with which he could begin, at least, his medical education. On August 7, 1893, at Alma City, Minnesota, he was married to Miss Myrtle E. Davidson, a native of Waseca County.[373] He entered the University of Minnesota College of Medicine and Surgery in 1894, and during the summers supported himself and his family by selling hail and cyclone insurance in Freeborn and Waseca Counties.[373] Doctor Harrison was graduated from the University of Minnesota College of Medicine and Surgery in June of 1897, and on August 1 settled at once in West Concord, where he remained for the rest of his life. He was licensed to practice medicine in Minnesota on June 10, 1897, receiving License No. 799,[40] and he was elected to membership in the Minnesota State Medical Society on June 16, 1898, at the thirtieth annual session of that organization in Saint Paul.[374] Dr. Parks Ritchie (1845-1913), dean of the University of Minnesota College of Medicine and Surgery, and Dr. John T. Rogers (1867-1937) of Saint Paul, were the physicians who endorsed his application for membership and sponsored him.[374]

For many years Doctor Harrison maintained a team of horses for driving

to answer his professional calls, and his widow[373] said that the mud roads of Dodge County often were in such bad condition that fences were pulled down so that horses and carriages could be driven across the fields. Even after Doctor Harrison acquired his first automobile in 1910, he still found it necessary to keep a team of horses, since in bad weather he could not use his automobile in certain parts of the county.

Doctor Harrison remained in West Concord until shortly before his death. He was health officer of the village for thirty years, and of Dodge County for a number of years. He was a member of the board of trustees of the West Concord Baptist Church. He served on the village board of education for twenty-five years, and was a president and a secretary of the Dodge County Medical Society. He was a member of the Minnesota State Medical Association and the American Medical Association. During his leisure hours he liked to raise flowers and to devote himself to music. In his earlier years he had been an accomplished cornetist.

Failing health forced Doctor Harrison to relinquish his practice at West Concord in November of 1933. At that time he moved to Worthington, where his son, Dr. Percy W. Harrison (1899-), is associated with the Worthington Clinic. Doctor Harrison died at Worthington of carcinoma of the prostate gland, on June 11, 1934,[375] and was buried in Concord Cemetery on June 13 of that year.

Dr. William Henry Tefft (1873-1938) was born in Belmont, New York, in 1873. He was the son of Thomas S. Tefft, a deputy clerk in that town.[376] He was graduated from the University of Michigan Department of Medicine and Surgery (as it was then called) in 1898, and was licensed to practice medicine in Minnesota on October 11, 1898, by Certificate No. 962.[40] He came to Dodge Center in Dodge County in July of 1898, as previously mentioned, and he remained there until the spring of 1899, when he removed to Claremont. In December of 1899 he returned to his home in Belmont, New York,[169] and not long thereafter was accepted as an officer in the Medical Corps of the United States Army.[376] He was ordered to the Philippine Islands, but by 1904 he was stationed at Fort Snelling.[377]

Doctor Tefft served in nearly every possession of the United States, but his career was signalized by his brilliant record as commander of an evacuation hospital during the great Marne offensive in the first World War. For this outstanding work he was awarded the Distinguished Service Medal in 1919 by the War Department in General Order No. 103.[378] The official citation accompanying the medal follows:

> As commanding officer of Evacuation Hospital No. 7 at Chateau Montomglaust, he performed his exacting duties with unflagging energy and marked executive ability. Overcoming grave difficulties due to inadequate personnel and equipment, he succeeded in receiving, treating, and evacuating a large number of wounded from the Marne offensive with notable success, thereby rendering services of the utmost value to the American Expeditionary Forces.

Doctor Tefft retired from the service as a colonel on March 1, 1937. He died of carcinoma of the pancreas at Fort Sam Houston, Texas, on July 1, 1938.[379]

Dr. Mary Eliza Ranson (Mrs. A. Franklin Strickler) was born at Dodge Center, Minnesota, on May 25, 1873,[380] the daughter of Dr. Stephen William Ranson (1843-1904) and Mary Elizabeth Foster Ranson.[233] She attended

the Dodge Center High School, from which she was graduated in June, 1890. She then enrolled in Hamline University in Saint Paul, and was graduated in 1894 with the degree of Bachelor of Philosophy.[380] In 1894 and 1895 she taught in the high school at Marshall, Minnesota, and in the public schools of Saint Paul. In 1898 she received the degree of Doctor of Medicine from the University of Minnesota College of Medicine and Surgery,[380] and on June 16, 1898, she was licensed to practice medicine in Minnesota under Certificate No. 935.[40] She spent eight months in Dodge Center in practice with her father,[380] and in February of 1899 removed to Saint Peter to become junior physician in the state hospital situated there.[166] In September of 1900, at Dodge Center, she was married to Dr. Abraham Franklin Strickler[381] (1873-1927), a brother of the well-known New Ulm physician who was the first of his profession to become a regent of the University of Minnesota,[382,383] Dr. Ora C. Strickler (1863-1928). Dr. A. F. Strickler at the time was also a member of the medical staff of the hospital at Saint Peter. Doctor Ranson and her husband immediately went abroad to visit continental clinics and to study European medicine and practice, especially in Germany and at Vienna.[380] Returning to the United States in January of 1901, they settled in Sleepy Eye in Brown County, where they practiced medicine together until the death of Doctor Strickler in Saint Mary's Hospital in Minneapolis on September 12, 1927.[384]

Doctor Ranson was a general practitioner for most of her career, but preferred obstetric practice to other specialties in medicine. In 1930 she visited England, Scotland, the Scandinavian countries, Russia, Switzerland, Italy, France, Palestine and Egypt, and has reported[380] that her avocation still is traveling in her automobile. She has been a member of the Dodge County Medical Society, Brown County Medical Society, Minnesota State Medical Association, and the American Medical Association.[380] At the time of this report (1943) she was dividing her time between Long Beach, California, and Sleepy Eye, Minnesota.

(To be concluded in the April issue.)

References will appear at the conclusion of this article.

President's Letter

MEDICAL INSURANCE

The day is undoubtedly coming in Minnesota, as in the rest of the country, when the ordinary citizen will reckon insurance against costs of medical and hospital service as part of his fixed expense just as he now reckons insurance against fire, theft, storm, damage to his car and loss of his life.

The principle of insurance as applied to medical service has now been accepted officially by organized medicine. It is a familiar concept to every man who desires to protect himself and his family against all foreseeable hazards. It is essentially American and self-reliant and may be looked for with certainty after the war, provided the government does not step in, in the name of Social Security, and remove all personal responsibility from its citizens.

We are perhaps in a fortunate position in Minnesota because we have not been forced prematurely into experimenting with this new phase of insurance protection. Experiments are now going on under medical society sponsorship in a considerable number of industrial states and communities. The demand came there, early, and the physicians had no choice but to chart their way in the dark, so to speak. We shall benefit by their experience, I hope, and so avoid costly errors that some of them made in the early days of their formation.

Reports from the second annual conference of executives of these medical society plans, held in Chicago last month, showed that many are now approaching the solid ground of solvency and satisfactory service. Our Committee on Sickness Insurance is keenly interested in developments. Its chairman attends the conference and receives its reports. A wide background of information is thus being collected which should be of great assistance to us in Minnesota.

At the same time, no national, master plan has been developed and it is probable that no one plan can ever be developed that will meet all of the varying conditions among the states and communities within the states.

Let us not, therefore, sit back complacently and wait for some superplan to drop full blown into our laps in Minnesota.

This is a sound development along traditional lines. It is needed here, as elsewhere, and we, too, should step out boldly, as soon as wartime conditions permit, to lead the way toward a plan in Minnesota.

E. Mendelsohn Jones

President, Minnesota State Medical Association

Editorial

CARL B. DRAKE, M.D., *Editor;* GEORGE EARL, M.D., HENRY L. ULRICH, M.D., *Associate Editors*

RELOCATION OF PHYSICIANS

WHILE one cannot speak with assurance of the how and when of demobilization of medical officers from the armed forces, it may be assumed that it will be a more or less gradual process. The sick and wounded servicemen will have to be cared for until ready to be discharged from active service or transferred to United States veterans' hospitals.

It is safe to assume that the majority of medical men in service, upon discharge, will return to their former locations. Some, however, will doubtless take advantage of the occasion to seek other locations. Many of the younger men who entered the service from medical schools or internships will seek postgraduate training in the specialties, and the capacity of institutions devoted to postgraduate medical training will be taxed.

There may be a dearth of discharged physicians seeking the smaller centers of population. In an effort to make location of these smaller centers more attractive and to help meet the financial outlay always entailed in changing location, Congress has made an appropriation of $200,000 for the rest of the fiscal year ending June 30, 1944.

According to the provisions of the act, a municipality, county, or other local subdivision of government may submit to the Surgeon General an application for the relocation of a physician or dentist, provided the application has first been approved by the State Health Department having jurisdiction. The Surgeon General may then enter into an agreement with the physician or dentist under which he will be allowed $250 a month for a period of three months, and the actual cost of travel and transportation of the physician or dentist and his family and household goods, the municipality agreeing to contribute 25 per cent of the total cost. The physician or dentist must have a license to practice in such community and must agree to practice in the locality for a year.

While the end of the war is not in sight, medical men are being discharged from the services about as fast as enlistments are taking place. The smaller centers of population and the local physicians are feeling the lack of private physicians more than the larger cities and urban physicians. Congress has at least provided a mechanism whereby localities can present their need; the success of the plan remains to be seen.

HIGH GOVERNMENTAL FINANCE

"We might pause here to ask what has become of all the billions of dollars that have been collected in this era of the social planners to meet the obligations of the Government in the matters of retirement, old-age pensions, and unemployment benefits that are provided for in the present law. The fact is, this money, collected from employes and their employers alike, has been used to pay the current expenses of this extravagant regime. When the time comes to meet the purposes for which it was collected, the people will again be taxed to supply it."

THE above quotation is taken from a speech made on December 7, 1943, by the Honorable A. L. Miller, a physician and congressman from Nebraska, before the House of Representatives. It is no secret that these funds raised by taxation of employes and employers for the specific purpose of providing old-age pensions and unemployment compensation have not been set aside for these purposes but instead have been spent for other purposes. If an employer in private industry or a life insurance company accepted payments to cover a specific liability and spent the funds for other purposes, what would be the reaction of the public and the Government? This procedure cannot be excused on the grounds of war expediency, for it has been going on since the Social Security Act became law. With its ever-increasing spending, the New Deal with its new philosophy of the function of the Federal government, ran our national debt up to forty-five billions before Pearl Harbor. Does anyone think for a moment that even had there been no war, the Government would have been able to meet its Social Security obligations without additional taxation?

The funds which will be collected under the Wagner-Murray Bill will amount to billions of dollars, estimated by some at fifteen to twenty, depending on the state of private industry in the postwar years. Since three and a half billions will

be allocated to medical care, one may be excused for wondering whether the income from this source will actually be spent for medical care or will be added to the general fund and will be spent for other purposes should the bill be passed.

AMA SESSION, 1944

THE annual session of the American Medical Association in 1944 will be held in Chicago, June 12 to 16. The plan to hold the meeting in Saint Louis this year had to be changed because of lack of hotel accommodations in that city.

The House of Delegates will meet in the Palmer House and the Scientific Exhibit will be located in the same hotel. The Technical Exhibit, however, will be held in the Stevens Hotel.

As hotel accommodations are often difficult to obtain, even in Chicago, those who plan to attend should make reservations early.

THE NATIONAL PHYSICIANS' COMMITTEE

THOSE who have supported the activities of the National Physicians' Committee in the past doubtless will be interested in the recent activities of this organization.

In the first place, there may have been some doubt in the minds of some as to the relationship of N.P.C. to other medical organizations. While N.P.C. is in no way officially connected with any other medical organization, its objectives have received the endorsement of the House of Delegates of the American Medical Association and, more recently, of the new Council on Medical Service and Public Relations. It has been in a position to accomplish certain objectives which the American Medical Association, owing to the nature of its constitution and organization, has been unable to do. The National Physicians' Committee has accomplished a great deal in the several years of its existence and, during the past year, it has been more successful in accomplishing its objectives than in any previous year.

The National Physicians' Committee, under the guidance of its Administrator, Mr. John M. Pratt, has carried on a campaign of propaganda against the Wagner-Murray-Dingell Bill during the past year which has been singularly successful. It has aroused the attention of laymen throughout the country and has drawn fire from such radical publications as PM and other sources. As a result of distributing some twelve million pamphlets detailing the various objections to the Wagner Bill and the great harm it would cause to medicine and to public health, there has been widespread expression throughout the country by laymen voicing objection to the bill. In addition, physicians and other professional men were urged to address service clubs and other gatherings, outlining the dangers of this bill. Approximately 160 newspapers have carried full-page announcements calling attention to the dangers of the bill. Thousands of letters and telegrams have been written by laymen to members of Congress, voicing their objections. As a result, voluntary expressions have been made by a large number of senators and congressmen who registered their disapproval of the bill. Largely as a result of this campaign, the chances for passage of the Wagner-Murray-Dingell Bill are now considered very doubtful. This campaign of publicity is generally acknowledged to be one of the most effective campaigns for the dissemination of information ever conducted.

During the last six months the National Physicians' Committee has engaged the Opinion Research Institute, which is a subsidiary of the Gallup Poll, to conduct a survey of public opinion regarding various phases of medical care. The preliminary results were so astounding that a further survey was made, which covered every section of the country thoroughly, so that there was no doubt as to the accuracy of the results. The results of this survey have been, in many instances, quite contrary to opinions which have been expressed previously, particularly by certain agencies in Washington. Contrary to statements emanating from that source, the great majority of laymen are not in favor of federal control of medicine or of compulsory sickness insurance. Surprisingly enough, this includes the laboring class, who apparently do not agree with their leaders. The great majority of citizens are satisfied with most of the features of the present form of medical care. There is, however, concern on the part of a great many as to their ability to meet the cost of catastrophic illness. The desire for some form of insurance, voluntary and not compulsory, and at a figure they could economically support, was expressed by a large section of those interviewed.

It is also of interest that the American Medical Association was not regarded as a medical trust,

(Continued on Page 215)

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

AMA COUNCIL VOTES WASHINGTON OFFICE

When the National Conference on Medical Service adjourned in Chicago last month, it was a foregone conclusion that an Office of Information for medicine would be opened in Washington at an early date.

That the office would be a part of the American Medical Association and under direction of the Council on Medical Service and Public Relations, was also a virtual certainty, though final approval still awaited action by the Board of Trustees.

Back of this certainty and the events of that crowded session, lay a situation that is probably without precedent in the history of organized medicine in the United States. For that reason, it might be well to review the sequence of events since last year's conference when the proposal to establish a national office in Washington first received nationwide attention among representatives of state medical associations. The idea originated in our own North Central Conference on Medical Service last year and was duly forwarded to the Board of Trustees. The Board marked time on the matter until the House of Delegates of the American Medical Association should meet.

By the time the delegates met in June, the national conference resolution had received wide publicity among the associations. Many state associations had officially endorsed it. Many others had passed similar resolutions and among the delegates there was a demand for better public policies and better public relations, so resolute that it could not be ignored.

Mandate Not Clear

The proposal to establish a Washington office met with opposition from the more conservative element, however, and the upshot was that a new Council on Medical Service and Public Relations was formed. Most of the delegates went home satisfied that one of the functions of this council would be the early creation of the Washington office; but the mandate was not clear and those who opposed its establishment seized upon one equivocal vote as justification for continuing an obstructive policy so far as the Washington headquarters was concerned.

It was announced in the *Journal of the American Medical Association* that the House of Delegates had voted to reject the office and the surprise and indignation expressed editorially by many medical journals, including MINNESOTA MEDICINE, should have been recognized as a forewarning of what was to come.

The Council on Medical Service and Public Relations was duly formed as soon as the delegates adjourned and very promptly encountered the usual wartime difficulties in perfecting its organization and in finding a qualified secretary. Pending completion of its organization, the Council also marked time. It issued a mild and general statement of policies but made no apparent move toward establishing a direct connection between Congress and government agencies in Washington and the medical profession. For several months they were unable to find a well-qualified secretary; but state associations and county societies all over the country were becoming impatient. Many of them openly denounced what they regarded as weakness and inaction on the part of the Council.

Western League Formed

Then the storm broke. Eleven western states were summoned by one of them to a conference and nearly all of the eleven joined in the creation of the "Western Public Health League" through which they proposed to establish their own office

in Washington. They raised their own funds, selected their own bureau head and invited other states to join them.

At approximately the same time, a group of physicians from Lake County, Indiana, formed what they called the "Association of American Physicians and Surgeons." They proposed to do the same thing and promptly sent a newspaper broadside to every doctor in the country telling about their plans. They, too, asked other states to join and send them contributions. Many did.

Division Threatened

Other states and groups of states met and drew up expressions of policies or openly demanded an office in Washington. The situation was dangerous in the extreme. The demand for a new spirit in medical leadership and more forthright action clearly showed that medical men everywhere were awake at last to the peril of their own position. It showed clearly, also, that the councils of medicine, far from being hidebound and controlled, might soon be completely disrupted and that division and lack of harmony might render all effort impotent.

At this point the North Central Conference met in Saint Paul and passed the resolution which appeared in these columns last month, expressing its confidence in the Council on Medical Service and Public Relations, its disapproval of disunity and its hope that an office would soon be established under Council auspices in Washington.

In an atmosphere of tense interest, the entire situation was thrashed out in this year's meeting of the National Conference in Chicago. Representatives of the Western Public Health League and of the Lake County, Indiana, organization laid their plans on the table and frankly expressed their disappointment in the absence of action by the Council. The Council, through its chairman, Dr. L. H. Bauer of New York, explained its difficulties, reaffirmed its purposes. Representatives of those who have consistently opposed establishment of a Washington office were present and participated in the discussion; but it was obvious to everybody that they had waged a losing fight. A forthright and masterly plea for responsible, working representation in Washington by Minnesota's Congressman, Walter H. Judd, appeared to clinch the matter.

Tentative Date Set

Long before the resolutions were brought in calling for such action on the part of the Council, in preference to separate action on the part of sectional groups, the outcome was evident. There remained the meeting of the Council, itself, called immediately after the Conference adjourned. It was expected that the Council would propose immediate establishment of an office in Washington and it did so. Representatives of the Western League, which had already declared itself as ready to open its own office on March 15, appeared before the Council and readily agreed to give way, provided the Council acted promptly and effectively. The Council accepted the responsibility and set a tentative date in April. The Indiana organization gave way without argument and there remained, at the end of an eventful day, only the final approval of the Board of Trustees to be secured. That the Board's approval will be forthcoming shortly is confidently expected by all concerned.

Long Step Forward

It is generally agreed, especially in Minnesota, where the movement started, that an office of information for medicine in Washington will be a long step forward in the creation of good public relations for medicine. The method has proved itself in Minnesota and many other states.

It is not, of course, the complete answer to the preservation of freedom for the physician, as the cornerstone of medical progress. There must also be wisdom, foresight and devotion on the part of the occupants of the Washington office and they must be equipped with a public policy which takes account of the needs of all of the people and of the inevitable demand that those needs shall be met—if not under the leadership of medicine, then by some other method which may, at the same time, destroy the basis of good medical practice.

The responsibility which the Council will assume in Washington is heavy. But the odds are with it and the stakes are higher, even, than the future of medical practice. They are intimately bound up with the continued freedom of the individual and of individual enterprise in the United States.

EXPERT TESTIMONY FROM CONGRESSMAN JUDD

It may well be that the talk made by Congressman Walter H. Judd of the Fifth Minnesota District before the National Conference on Medical Service in Chicago really turned the tide toward a new and more realistic handling of medical affairs in Washington.

At any rate, here, at a critical moment, was expert testimony from a congressman who is also a physician and who, therefore, saw the situation from both sides of the Washington fence. Here was testimony, also, from a man who is known to be actuated by the highest motives both as a congressman and as a physician and a man who is wholly convinced that the freedom of physician and patient in America must be preserved.

A brief digest of Dr. Judd's remarks is printed below.

The Doctor's Problem

The doctor's problem, like the businessman's problem has changed, Dr. Judd said. Once, the businessman's problem was chiefly financial. Then it became a matter of production and distribution. Then it was labor. And now, as government reaches farther and farther into the life of every citizen, it is government, itself, and business must of necessity have somebody constantly in Washington to work with government and government agencies.

So, in medicine, the physician's problem once was curative medicine. Then it was prevention of disease. Next it became a problem of devising and employing new techniques for distribution of medical service. Now it is also government, and the problem of handling Congress and the government bureaus must be tackled by the doctor as well as the businessman.

As doctors, we are trustees of a magnificent heritage. But we are now in a great national crisis and great crises tend to show up both our strength and our weaknesses.

We Never Stood Higher

It is my belief that medicine never stood higher than it does today, so far as scientific achievement is concerned. It never stood higher so far as patriotism goes. The readiness of so many of its practitioners to go into the hardest kind of military duty without any compulsion whatever except the desire to serve has surprised Washington. But the national crisis has brought home to many the fact that medical services at home are inadequate in quantity and their distribution imperfect.

When there are inadequacies in any essential goods or services, rationing is necessary. Without it you may have a situation in which the best and most medical services go to the highest bidder and that is a thing which we must avoid.

We must find a way to extend good medical service to everybody, not only because medical service is an essential, but also because a way to do it will certaintly be found by somebody, if not the physician, and that way may not be to our liking.

They Do Not Comprehend

There are people now who have a program designed for that purpose. They acknowledge that 80 per cent of our people have good medical care, better care than any people anywhere in the world. It is a fact, however, that we doctors tend to emphasize the excellence of the care given to the 80 per cent and forget all about the other 15 to 20 per cent; while these other people emphasize the troubles of the 15 per cent and are perfectly willing to scrap the whole system which now takes excellent care of the great majority for the sake of the unfortunate 15 per cent. Mostly, I believe, these people are sincere. They simply do not comprehend what are the basic essentials of good medical service. But they do have access to the agencies that supply information to the country and to the machinery that gets legislation on the statute books.

Must Come from Within

We doctors know that three basic principles must be maintained and perpetuated if medical service is to continue on a high standard in the United States. First, the service must be voluntary. Second, it must be personal and direct between doctor and patient. Third, there must be a constant stimulus to advancement. It is up to us, therefore, to find a solution to problems of quantity and distribution from within which will preserve those principles. If we do not, the solution will be found from without and quality will suffer.

Obviously we must work out our own plans, and, equally obviously, we must sell them to Washington. To do that we must have, first, a better liaison with Washington.

We Cannot Wait

We all agree that it would be a good thing to have a Department of Health in the cabinet. But the way to such a re-organization is long and difficult and we cannot wait for it. What we need now is a two-way information bureau. Not a bureau which distributes information according to your prejudices; but a source of factual, unprejudiced information which will originate in Washington, itself, and which will be available at all times to members of Congress.

It is true that there are seven doctors in Congress, but these seven doctors cannot do the job for you. They lack the time to ride herd on legislation and anyway they were not sent to Washington to represent medicine alone, but all the people in their constituencies. If they were to attempt to assume the responsibility for the medical profession they would soon be known as "plants" and their usefulness would be destroyed.

The cultists and the quacks have lobbies in Washing-

ton and they are constantly on hand. They slip a word into legislation here, a qualification there, and there is no one to tell the uninformed legislator that these qualifications are injurious to the public welfare.

They Welcome Help

Legislators are human. They welcome help. In fact they often seek it in the interest of public welfare. They would seek it from qualified representatives of medicine if they were there to give it to them when it is needed. There is no lack of dignity, no prostitution of professional standards involved in establishing a bureau openly to give them help.

It is not likely that the Wagner-Murray-Dingell Bill will pass this year. But do not take too much comfort from that. That means that you have a breathing spell now. But it is your last breathing spell. If you do not come through with constructive proposals and constructive help for Congress at once, you will be too late.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

J. F. DuBois, M.D., Secretary

Minneapolis Woman Placed on Probation Following Plea of Guilty to Charge of Criminal Abortion

State of Minnesota vs. Alma Peterson (Anna Peterson)

On February 21, 1944, Mrs. Alma Peterson, who is also known as Mrs. Anna Peterson, 3526 Knox Avenue North, Minneapolis, was sentenced to a term of not to exceed five years in the Women's Reformatory at Shakopee, Minnesota, the sentence being suspended and the defendant placed on probation for a period of three years. The defendant had entered a plea of guilty on February 7, 1944, to an information charging her with the crime of abortion. The defendant also admitted a previous conviction to a similar offense in December, 1934. Judge Arthur W. Selover, who imposed sentence, stated that the Court was taking into consideration the fact that the defendant was engaged in war work, operating a power machine in the manufacture of army overcoats for D. B. Rosenblatt, Inc., 119 4th Street North, Minneapolis. Judge Selover stated that it was unusual to grant a suspended sentence to a defendant with a previous criminal conviction, but, under the circumstances, would give the defendant another opportunity to make good.

The defendant, fifty-four years of age, married and the mother of three grown children, admitted that she was paid $20.00 for the abortion which was performed with a catheter. The patient became seriously ill and was taken to a Minneapolis Hospital where she recovered. The defendant admitted performing five criminal abortions during 1943, for which she received $20.00 from each case for her services. Upon being questioned by the Court Mrs. Peterson stated that prior to 1926, she lived at Mora, Minnesota, and that she had only a sixth grade education. When asked how she learned to perform abortions she stated that she had aborted herself on seven occasions, getting her advice in the first instance from a doctor.

EDITORIAL

(Continued from Page 211)

as has been ballyhooed from Washington, but that its objectives met with the approval of the great majority of laymen who are acquainted with it.

This information, together with much more, will be given to the press at a conference to be held in New York in the very near future. In addition to these various activities, the National Physicians' Committee is still sending editorials acquainting the layman with the accomplishments of medicine to 12,000 weekly newspapers throughout the country.

From all this it is evident that those of you who have given support to N.P.C. activities in the past have had liberal returns from the investment. It is also evident that in order to carry on this program, continued funds must be forthcoming from the medical profession. It will be necessary for those who have given in the past to be even more generous in the future and those physicians who have not made any contributions should do so at their earliest conveniece.

W. F. Braasch
F. J. Savage

CORRECTION

In the editorial entitled "Maternity Assistance for Soldiers' Wives," which appeared in our January issue, it was stated that "Mississippi and Texas, if they have not already done so, will doubtless shortly be added" to the list of states in which the Maternity Plan is operating. The statement should have read "Louisiana and Texas," for Mississippi heads the list of southern states in the number of cases accommodated by the Emergency Maternal and Infant Care Program. Incidentally, Louisiana and Texas began operation in December, according to a communication received by the Director of the Maternal and Child Health of the State of Mississippi.

GERM-KILLING SUBSTANCES FOUND IN ONION OILS

Apparent support for an old folk-belief that onions, garlic and their strong-scented kin-vegetables are "good for what ails you" is offered by the reported discovery, by Prof. B. P. Tokin of the University of Tomsk, USSR, that their essential oils contain substances that kill bacteria, protozoa and even larger organisms like yeast cells and the eggs of certain lower animals. The report is contained in a bulletin of the USSR Society for Cultural Relations with Foreign Countries, which has just been received in the United States.

Professor Tokin has given the name "phytoneides" to the substances he has isolated. Experimental use in hospitals is now being made of these compounds, particularly in the treatment of suppurative wounds.—*Science News Letter*, February 12, 1944.

Minnesota Academy of Medicine

Meeting of December 8, 1943

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Minneapolis Club on Wednesday evening, December 8, 1943. Dinner was served at 7 o'clock and the meeting was called to order at 8:15 by the President, Dr. H. B. Zimmermann.

There were forty-six members and two guests present.

Minutes of the November meeting were read and approved.

The Secretary read a letter from Dr. John M. Armstrong requesting that his name be placed on the Senior list of members. A motion was seconded and carried that this be done.

The annual election of officers was held and the following were elected for the year 1944:

President.....Dr. Walter Camp, Minneapolis
Vice President..Dr. A. G. Schulze, Saint Paul
Secretary-Treasurer.....Dr. Erling Hansen, Minneapolis

The scientific program followed.

INTRATHORACIC TUMORS

THOMAS J. KINSELLA, M.D.
Minneapolis, Minnesota

Dr. Kinsella read his Inaugural Thesis on "Intrathoracic Tumors." Lantern slides of x-ray films and color slides of pathological specimens were shown.

Abstract

I deeply appreciate the honor of my position here as a member elect and the privilege of presenting this material as my Inaugural Thesis.

Thoracic tumors may be discussed in three groups—those involving the chest wall, the mediastinum and the lung. I have purposely omitted any consideration of the most common tumor of all—bronchogenic carcinoma except as it presents itself as a gross tumor mass, because the obstructive phases of this subject have been so ably covered by Dr. Rigler at a recent meeting. Contrary to common opinion, the majority of thoracic tumors aside from primary cancer of the lung, are benign rather than malignant, and many are amenable to surgical treatment. The earlier they are excised, the simpler the task and the less the risk. As the diagnosis is not always certain, exploratory thoracotomy is frequently advisable.

(Note: The complete presentation will be published at a later date.)

Discussion

DR. LEO G. RIGLER, University of Minnesota: I think the Academy is to be congratulated on acquiring a thoracic surgeon of Doctor Kinsella's calibre and great accomplishments. I am always fascinated, when listening to the achievements of a good thoracic surgeon, especially when I contemplate the change which has occurred in this particular field of surgery in the past decade. We have had, I think, the opportunity of seeing one of the most beautiful demonstrations of the possibilities of thoracic surgery that it has ever been my own pleasure to witness.

It is interesting to find that a good many of these thoracic tumors are discovered rather accidentally. At the University Hospital, for example, where we do a routine fluoroscopic examination on all the patients admitted to the Hospital and out-patient clinic, we have discovered a rather considerable number of such cases which have hitherto been undetected both by the patient and his physician. As a result, this procedure has brought a good deal of work to the thoracic surgery service.

I should like to emphasize the fact that the differentiation of aneurysm of the aorta from other intrathoracic tumors is not at all easy. There are many instances in which an aneurysm may be simulated, particularly by a substernal thyroid and vice versa. I think the differentiation can best be made by careful fluoroscopy in a variety of positions, and occasionally roentgen kymography is also helpful; but, even so, difficulties may be encountered.

I think Doctor Kinsella wisely stressed the wide variety of roentgenographic examinations which must be made to help in the differential diagnosis of thes. thoracic tumors.

I should like also to emphasize one other point: that is, carcinoma of the lung rarely produces rib destruction. I have recently seen one such case, but such exceptions simply tend to emphasize the rule. With the exception of the pulmonary sulcus tumor of Pancoast, as Doctor Kinsella has already pointed out, the primary lung tumors rarely erode ribs.

Endothelioma of the pleura is another tumor which should not be overlooked. While there is some doubt that this is a pathologic entity, we have seen several cases found among our students during the course of routine examination which eventuallv proved to be very malignant.

I think Doctor Kinsella has wisely emphasized the teamwork between the radiologist, the clinician, and the thoracic surgeon which is necessary in the case of thoracic lesions, both in the determination of the diagnosis and in the exploration of the possibilities of curative surgery.

DR. H. L. ULRICH, Minneapolis: I would like to ask Dr. Kinsella how often he has encountered what is commonly called pulmonary osteoarthropathy in these cases of intrathoracic tumors. Recently there has been reported four cases of intrathoracic tumors with these changes, and associated changes in the pituitary gland.

DR. WM. A. HANSON, Minneapolis: I wish to compliment Dr. Kinsella on the presentations of his cases. Dr. Leo Rigler or Dr. Kinsella, in their reviews in their theses, did not mention broncholithiasis, which I believe is of importance. The excellent photographs and slides I believe were taken by Dr. Kinsella himself, which have added materially to his discussion.

DR. KINSELLA, in closing: Finger changes, i.e., clubbing and watch crystal nails, are not common but do occur in perhaps 4 to 5 per cent of patients with primary bronchogenic carcinoma. Probably one of the reasons for this is the fact that the patient with this disease may not live long enough to develop them. The patient whose films showed the two large tumor masses had definite clubbing of the fingers and toes.

Exploratory thoracotomy certainly has a place but may be of greater theoretical than practical value, particularly in the adenoma group for frozen sections here may prove more confusing than helpful even with an experienced pathologist at hand. We must depend to a considerable extent upon the gross local findings and our previous studies in deciding upon the procedure to carry out once the chest has been opened.

The broncholiths which we see are small and are not easily confused with bronchial tumors. Occasionally, a larger focus or tuberculoma undergoes calcification but the size and location and density should serve to identify this condition.

The diagnosis and treatment of thoracic tumors requires the closest coöperation between the internist, the roentgenologist, the bronchoscopist, the pathologist and the surgeon. Exploratory thoracotomy is no longer the dangerous procedure that it was several years ago, thanks to the services of the expert physician anesthetist, without whose services most of this work would not be possible.

The meeting adjourned.

A. J. SCHULZE, M.D.,
Acting Secretary

Meeting of January 12, 1944

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Minnesota Club, Saint Paul, on Wednesday evening, January 12, 1944. Dinner was served at 7 o'clock and the meeting was called to order at 8:15 by the President, Dr. Walter E. Camp.

There were forty-five members and six guests present.

Minutes of the December meeting were read and approved.

There was no new or old business to come before the Academy and the scientific program followed.

Dr. Zimmermann, of Saint Paul, retiring President, made the following remarks and read his Presidential Address.

I want to thank the Academy for having me as President this past year, and to assure you I appreciate and have enjoyed it a great deal. The business of selecting a President's address is certainly a difficult one. My reason for selecting the Wagner Bill and the attitude of organized medicine and doctors toward this bill was because I thought it was something of extreme moment to all of us today. It has interested me a lot. It seems to me there is a way out of the worst part of the dilemma.

ORGANIZED MEDICINE AND THE WAGNER-MURRAY BILL

HARRY B. ZIMMERMANN, M.D.
Saint Paul, Minnesota

I have read quite thoroughly Bill S. 1161, known as the Wagner-Murray Bill, and I have found it rather unpleasant reading, and I am convinced that should it become law I would have a very unhappy time. I at one time intended to epitomize the entire Bill, and point out to you its dangers, but this would take much too long. Suffice it to say that, as far as medicine is concerned, it covers two broad functions.

One concerns the distribution and financing of medical care. This, I contend, is society's business, or at least it will make it its business.

The other function is the standardization of doctors and hospitals and the supervision of professional education and medical research. These are very definitely the doctors' business, and should this sort of dictatorship become the law of the land it could decidedly lower the standards of medicine.

The arguments for or against Socialized Medicine are without end. Debates on the subject could continue indefinitely. This paper is not to defend or accuse Socialism. I am assuming that the people of this country want some change in the method for providing medical care. When people demand a change they usually get it.

Throughout the ages Medicine has made progress. This progress has been made by the doctors themselves, through their Guilds, and societies, and schools. No matter what type of economic or social scheme is adopted, medicine as a Science and Art is our responsibility, and we should exert every effort to keep it so. It may be that we have voluntarily relinquished some of our functions in order to more efficiently perform others; one of these is the social function.

Many of our arguments against any form of Socialized Medicine are confessions of our own inadequacy. One argument, which we use constantly, is that any scheme of government regulation of our profession will be dominated by social workers. Apparently a fair majority of the medical profession has a certain contempt for social workers; there was a time when the doctors were the only social workers, and they were extremely competent in this field. Long before the pronouncements of the Atlantic Charter doctors recognized that Freedom From Fear was a most necessary factor in the treatment of disease and they concerned themselves, actively, in alleviating, in every way, their patients' apprehensions. Because of the complexity of the modern social system and the tremendous development of medical science, we have found it expedient to delegate this very important work to laymen, untrained in medicine. I think it is time that we

include the Social Sciences somewhere in our curriculum.

Another one of our pet clichés that is beautifully sentimental, and as a tradition dates from Hypocrates, is what we like to call the "Doctor-Patient Relationship." There is no doubt that more or less of this relationship should be preserved, but we all know that in the care of the sick the doctor is responsible not only to the patient, but to social units of varying complexity, from the immediate family to economic units, and eventually to the entire community. It certainly makes a great deal of difference to the rest of the family if the patient gets poor medical care; it also is important to the patient's employer, his co-workers, and to the community which will have to take care of him should he be incapacitated as a breadwinner.

So, medical care *is* society's business.

There is no doubt that as medicine becomes more and more competent, society will be more and more interested in, and dependent upon, its accomplishments.

When medicine had little to offer it made very little difference whether or not the patient employed a doctor. He may have felt better if some weird individual, made up like a Mardi Gras character, danced about his tent and shook a rattle at him and gave him some nauseating draught, but society never quite accepted this sort of thing as very convincing.

But today the worst medical iconoclast cannot help but feel a certain sense of security for a son in the Service when he reads of the accomplishments of Military Medicine in the War.

A man going into the Service claims this kind of medicine as his right. The nation, as a military organization, finds it necessary in order to win the War. And, by the same reasoning, society will demand it when the War is over.

I believe we are inclined to feel that the financial responsibility for medical service is the concern only of us and our patients. Obviously this is not so. There are precious few patients who pay for their medical care themselves at the time of their illnesses. Medical care, in almost every instance, is being subsidized by the state, the government, or by private contributions. This, broadly speaking, is Socialism.

Another argument one hears is that government-regulated medicine will be dominated by politicians. This is perfectly obvious. Any type of Socialism is government by Bureaus or Committees. This to me is one of the grave dangers in the Wagner-Murray Bill and the place where I maintain we not only have the opportunity to do something, but where it is our duty to assert ourselves. Doctors could obviate this danger if they would use the present established means, which I will group under the broad term of Organized Medicine, to not only dominate, but actually be, these Committees.

The laymen feel, as do a great many doctors, that Organized Medicine is purely a Guild to protect the economic status of the doctor. In order to correct this entirely erroneous impression it will be necessary for everyone to have a better understanding of Organized Medicine, its functions and activities. If you look into it you will find that the least of the activities of Organized Medicine is concerned with the Guild function. When I speak of Organized Medicine I am referring not alone to the American Medical Association, although I feel it is by all odds the most important group, but I am referring to the various urban societies, county and state societies, organizations such as ours, and to the various learned groups and societies of specialists. Right now there is no activity of the government to which the specialized knowledge of doctors can contribute wherein these various groups are not called upon for advice.

If one looks over Bill S. 1161, one finds that the Surgeon General of the United States Public Health Service is to be the supreme authority and dictator of the entire practice and science of medicine, and that there will be appointed an Advisory Medical and Hospital Council, to consist of the Surgeon General as Chairman, and sixteen members to be appointed by him.

"These sixteen appointed members shall be selected from panels of names submitted by the professional and other agencies concerned with medical services and education and with the operation of hospitals and from among other persons, agencies, or organizations informed on the need for or provision of medical, hospital or related services and benefits."

I feel quite sure that the authors of this Bill intended that some members of this Advisory Council be chosen by the Surgeon General from panels submitted by Organized Medicine. Should this Bill ever come up for hearing we must see to it that none of the Advisory Councils or Advisory Boards that Organized Medicine has found necessary for the development and standardization of our professional activities are sacrificed. Instead they must be developed and given even greater authority.

I shall now read you section "b" from Page 43 of Bill S. 1161:

"(b) The Council is authorized to advise the Surgeon General with reference to carrying out the provisions of this Act, including (1) professional standards of quality to apply to general and special medical benefits; (2) designation of specialists; (3) methods and arrangements to stimulate and encourage the attainment of high standards through coördination of the services of general practitioners, specialists, laboratories, and other auxiliary services, and through the coördination of the services of practitioners with those of educational and research institutions, hospitals and health centers, and through other useful means; (4) standards to apply to participating hospitals and the establishment and maintenance of the list of participating hospitals; (5) adequate and suitable methods and arrangements of paying for medical and hospital services; (6) studies and surveys of the services furnished by practitioners and hospitals and of the quality and adequacy of such services; (7) grants-in-aid for professional education and research projects; (8) establishment of special advisory, technical, local or regional boards, committees, or commissions."

Because of the War the government is now enlisting all the scientific and technical talent available in the country to give advice on various problems directly connected with the War effort.

This is done through the National Research Council. The most expedient way of getting a start toward obtaining medical talent, as represented by the Division of Medical Sciences of the National Research Council, should be from committees suggested by the American Medical Association, and in turn by the various specialized groups throughout the country. These are Committees on: Medicine, Surgery, Neuropsychiatry, Aviation Medicine, Industrial Medicine, Sanitary Engineering, Shock and Transfusion, Treatment of Gas Casualties, Chemotherapeutic and Other Agents, Drugs and Medical Supplies. And Sub-Committees on: Nutrition, Surgical Infections, Burns, Injuries to Blood Vessels, Nerves and Bones, War Neuroses, Venereal Disease, Oxygen and Anoxia, Changes in Forces of Gravity, Decompression Sickness, Clothing, et cetera.

In the Emergency the Government has found it expedient to acquire all this talent through Organized Medicine, and the talent has done a good job.

As for the part of this Bill referring to grants-in-aid by the Government for medical research and graduate education: this I believe, is the most dangerous provision of the entire Bill.

The financing of research by Government grants would amount to peddling out funds purely on a geographic or per capita basis, as it would be impossible for any individual, or group of individuals, to evaluate the worthwhileness of research projects.

By the same token, to equally distribute funds for educational advantages to all doctors is idealistic and democratic but a perfectly stupid idea, and who, in a democratic country, would have the temerity to select those doctors who would be competent to take further education?

If society feels that medical research is being slowed up by lack of funds, I should be quite willing to have the Government build and equip research institutions, the workers to be selected by their faculties from the Medical Corps of the Army, the Navy, and the United States Public Health Service, and from deserving workers in civilian life. Allow these institutions to compete directly with our Universities and volunteer organizations, such as the Rockefeller Research Institute, thereby stimulating healthy competition among all of them.

As for grants-in-aid to practicing doctors for post-graduate work, society must see to it that doctors are sufficiently well paid to maintain a proper economic position and avail themselves of all the education that they feel is necessary, and for which they should be willing, and happy, to make certain small sacrifices.

After the War is over, and should laws be passed to regulate the practice of medicine, it is my thesis that as individuals we have every right in the world, in a democratic country, to support or oppose as violently as we wish, any tendency toward Socialized Medicine. But as doctors, and members of the medical profession, it will be our function to support Organized Medicine unanimously and wholeheartedly, on the assumption that Socialism is Government by Committees, commonly called Bureaus.

That being the case we should, through Organized Medicine, actually *be* the Committees or Bureaus, not because of any selfish interest as individuals, but because it is the only means by which we can maintain the high standards of medical practice, and therefore, give the best medical service to the people of this country.

We already have, in Organized Medicine, through the American Medical Association, facilities for doing all of this, in Councils on Medicine and Hospitals, Pharmacy and Chemistry, Physical Therapy, Foods and Nutrition, Industrial Health, and a Bureau of Information.

There are also Boards for the standardization of specialties and the selection of specialists; these are today performing their functions in an efficient and democratic manner. There are fifteen of these Boards of Medical Specialties, with from nine to thirteen members on each. We should see to it that all of these important Boards be represented directly or indirectly on any Government Bureau, and that decisions involving their functions be made by them before the questions be adopted as accepted procedure. (A complete list of these Committees is appended at end of this paper.)

There is nothing new about all this. There is plenty of precedent the world over, especially in England, for the recognition by the State of professional Guilds. For instance, the Royal College of Physicians and the Royal College of Surgeons, in England, are recognized by the State, and membership in them entitles one to practice, although they are purely medical Guilds, or Societies. By the same token, membership in the Inns of Court, by lawyers, entitles the individual to plead cases before Government Courts, although the Inns are lawyers' Guilds that originally were merely luncheon clubs.

It is my contention that inasmuch as we have, in Organized Medicine, all of the mechanisms necessary for the regulation of the practice of medicine, the standardization of medical practice in all of its specialties and the education of doctors, we should insist that these mechanisms, and these only, be used for the government of our profession, no matter how far society goes toward the distribution and making available of our services.

One of the chief difficulties that we will meet in achieving this end will come from insufficient unity among the doctors themselves. It will be necessary for doctors to so organize our existing societies and groups that they can claim the support and loyalty of all doctors. They should be democratic, to the extent that they will always represent medical opinion; they should be altruistic to the extent that their chief concern will always be the best possible medicine for society; and they should preserve enough of the Guild function so that practitioners of medicine will always enjoy their proper position in society and be sufficiently compensated to maintain that position.

Councils of the American Medical Association

Appointed by the Board of Trustees from among recognized specialists in the fields concerned, the Councils develop standards, pass upon methods and products, conduct investigations, report annually to the Board of Trustees and House of Delegates.

American Boards in the Specialties

Approved by the Council on Medical Education and Hospitals of the American Medical Association upon recommendation by the Advisory Board, the advisory Board on Medical Specialists is composed of two representatives each from each of the examining boards of the specialties and such other national organizations as are interested in education, examination or certification of medical specialists, including among the latter, the Association of American Medical Colleges, the National Board of Medical Examiners, the Federation of State Medical Boards of the U.S.A., the American Hospital Association, the Council on Medical Education and Hospitals of the American Medical Association.

The individual Boards and their membership are as follows:

American Board of Anæsthesiology.—Nine members representing the Section on Anesthesia of the American Medical Association (three); the American Society of Anesthetists, Inc. (three); and the New England Society of Anesthesiology (three). Coöperating organizations nominate their representatives on all Boards subject to the Advisory Board. They serve for six years.

American Board of Dermatology and Syphilology.—Nine members representing the American Dermatological Association (three), the Section on Dermatology and Syphilology (three). No term of office specified in the directory.

American Board of Internal Medicine.—Nine members representing the American College of Physicians (five), and the Section on the Practice of Medicine of the American Medical Association (four). Three of the first group and two of the second to be of professorial rank in approved medical schools of the United States or Canada. The term of office (except for the original appointees) to be six years.

American Board of Neurological Surgery.—Twelve members representing the Society of Neurological Surgeons (five); the Harvey Cushing Society (three); one each from the Section on Nervous and Mental Diseases of the American Medical Association, the Section on Surgery of the American Medical Association, the American Neurological Association and the American College of Surgeons. Term of office (except for portion of original appointees) six years.

American Board of Obstetrics and Gynecology.—Nine members representing the American Association of Obstetricians, Gynecologists and Abdominal Surgeons (three), the American Gynecological Society (three), and the Section on Obstetrics and Gynecology of the American Medical Association (three); term of office six years.

American Board of Ophthalmology.—Twelve members representing the American Ophthalmological Society (four); the Section on Ophthalmology of the American Medical Association (four) and the American Academy of Ophthalmology and Otolaryngology (four); term of office, four years, one member being elected each year by each of the participating societies.

American Board of Orthopædic Surgery.—Nine members representing the American Orthopædic Association (three); the Section on Orthopædic Surgery of the American Medical Association (three) and the American Academy of Orthopædic Surgeons (three). Term of office not specified in the Directory.

American Board of Otolaryngology.—Ten members representing the American Laryngological Association (two); the American Otological Society (two), the American Laryngological, Rhinological and Otological Society (two); the American Academy of Ophthalmology and Otolaryngology (two) and the Section on Ophthalmology, Otolaryngology and Rhinology of the American Medical Association (two); term of office not specified in the Directory.

American Board of Pathology.—Eight members representing the American Society of Clinical Pathologists (four) and the Section of Pathology and Physiology of the American Medical Association (four). Term of office six years.

American Board of Pediatrics.—Nine members representing the American Pediatrics Society (three); the American Academy of Pediatrics (three); the Section on Pediatrics of the American Medical Association, (three). Term of office six years.

American Board of Plastic Surgeons.—Fifteen members representing the American Association Oral and Plastic Surgeons, the Surgical Section of the American Medical Association, the American Surgical Association, the Southern Surgical Association, the American College of Surgeons. The number of representatives from each and the term of office not specified.

American Board of Psychiatry and Neurology.—Twelve members representing the American Neurological Association (four), the American Psychiatric Association (four), the Section on Nervous and Mental Diseases of the American Medical Association (two psychiatrists and two neurologists). Term of office not specified.

American Board of Radiology.—Fifteen members representing the American Roentgen Ray Society (three), the American College of Radiology (three), the American Radium Society (three), the Radiological Society of North America (three) and the Section on Radiology of the American Medical Association (three). Term of office not specified.

American Board of Surgery.—Thirteen members representing the American Surgical Association (three), the Surgical Section of the American Medical Association (three), the American College of Surgeons (three), the Southern Surgical Association (one), the Western Surgical Association (one), the Pacific Coast

Surgical Association (one), the New England Surgical Society (one). Term of office is six years.

American Board of Urology.—Nine members representing the American Association of Genito-Urinary Surgeons (three), the American Urological Association (three), the Section on Urology of the American Medical Association (three). Term of office not specified.

Discussion

DR. LEE BARRY, Saint Paul: Would you answer me whether this Bill 1161 is the wish of the people or the wish of the politicians?

DR. ZIMMERMANN: I wish it were the desire merely of the politicians, but I am afraid it is the wish of society that something be done. If it were put up to a plebiscite in this country, I am afraid we should have it.

DR. WILLIAM BRAASCH, Rochester: This is a pretty big subject for anyone to discuss in the short time available. I will say this much, however, that I was very much pleased to see that a man of Dr. Zimmermann's intelligence and ability became interested in a subject of this kind, in spite of the large clinical load he carries. I can well remember when a subject of this kind would not interest the average physician and would be left to the medical politicians to worry about. Today most thinking medical men have become interested in the economic aspects of medicine and the problems involved. It is a subject of tremendous importance to the future of medicine.

I quite agree with Dr. Zimmermann that the social implications of medicine in the future will have to be dealt with much more intelligently than they have been in the past. I also think that organized medicine is capable of dealing with its economic problems and I am confident that it will do so in the future. In fact, there is no other group of men in this country who are capable of solving the problems of medical care. With all due respect to the social workers in Washington, they are not the ones to do so. Organized medicine is becoming strong enough so that its members will insist on controlling any plans for the distribution of medical care and to see that it will not be controlled by Federal authorities.

It has been said that the American Medical Association and its subsidiary state organizations are not looking out for the economic interests of medicine. Although these organizations move slowly and conservatively, because they emphasize the scientific side of medicine, much is being done. The new Council on Medical Service and Public Relations will be a powerful factor in solving these problems. The National Physicians' Committee has exerted a powerful impression on public opinion favorable to American medicine. The attitude of the individual physician and his influence on his patients is a great factor in propaganda.

The other day I met a country practitioner who lives a few miles from Rochester. He said, "Doctor, will the Wagner-Murray-Dingell Bill be passed by Congress?" This man is a good doctor, with a rather limited practice. I doubt that he makes over $2,500 a year. He said, "Doctor, if that bill passes, I don't know what we will do. If they are going to tell us how we must practice medicine and take my independence away from me, I will quit medicine." This in spite of the fact that if the bill were passed, the Federal government probably would pay him much more than his present income. However, it is a matter of independence and free enterprise that most doctors wish and which they prize above income.

You spoke about the Advisory Council to the Surgeon General, which is referred to in the Wagner bill. I fear that such a council would not have much power, nor will it be representative of organized medicine. I am reminded of the Advisory Council of the Child Welfare Department, which is charged with taking care of wives and infants of soldiers in service. When that act was drawn up, all details were planned by the Social Security Board, without asking for advice from the medical profession. There is no advisory council which is controlled by Federal Boards that ever will amount to much. Organized medicine and the American Medical Association never have been asked to give advice or counsel of any kind by Federal agencies in drawing up bills affecting the practice of medicine.

I believe you said that there is a general impression that medical research has lagged because of insufficient funds from private sources, and that the Wagner bill will provide large sums of money for this purpose. In the first place, I would question that medical research in this country has lagged. In fact, it has made remarkable contributions in recent years and still is making progress in spite of the war. Of greater importance is the fact that it is the result of private initiative and that it is not controlled by any centralized governmental group. There is an item in the Wagner bill which also refers to the payment of a huge subsidy to medical education. It would be a great misfortune if medical education were controlled by Federal agencies, as would follow if this bill were passed. I would like to ask you if you know of any federal money that did not have a string attached to it in order to keep governmental control.

I believe you inferred that there is widespread public opinion which holds that the doctor is selfish and believes that there is a medical trust controlled by the American Medical Association. The National Physicians' Committee recently has employed the Opinion Research Corporation, which is a branch of the Gallup poll, to make a survey of public opinion regarding its attitude toward the medical profession and to federal control of medicine. According to information recently received from this survey, it is surprising that a considerable majority of those interviewed expressed great respect for medicine as it is now practiced and have confidence in the medical profession. They also believe that the American Medical Association is doing a good job in protecting the interests of health and in advancing medical science. This is quite contrary to the propaganda that has been spread against organized medicine and the American Medical Association. The main criticism expressed was the high cost of medical care. It is also of interest that a majority of those interviewed were opposed to Federal control of medicine.

I am sure that we physicians will eventually solve this problem in the best interests of public health and that organized medicine is strong enough to ward off the threats of Federal control of medicine.

DR. E. M. JONES, Saint Paul: I was very much interested in Dr. Zimmermann's paper and agree with many of his points.

The public health in this country is on a higher standard than in any other country in the world. Before the war there were about 120,000 practicing physicians in the United States, and I believe that before this conflict is finished over half of these physicians will be in some branch of military service. When our ranks are so depleted it seems unfortunate that we have to face Social Security legislation that amounts to regimenting the medical profession. The men now in service naturally are being regimented, but I do not believe that they will be in favor of regimentation when they return to private practice. I think the public will appreciate the efforts of the doctors that are at

home in attempting to maintain the standards of public health.

I agree with Dr. Zimmermann that the doctors should be consulted regarding legislation that in any way affects the practice of medicine. I also feel that there is a need of some medical plan to take care of people in the lower income group. It would be well if all the doctors familiarized themselves with the bill so they will be able to intelligently discuss it before either lay or professional groups.

The medicine to be practiced under the Social Security Act is termed socialized medicine. I think we have had socialized medicine in some parts of this country for many years. It is bureaucratic medicine that they are trying to force upon us. The bill that is being proposed will, I believe, affect medical education because a student now in medical school puts forth every effort to become as good a doctor as possible. If this legislation is successful, and he realizes that he is to graduate into a regimented form of medicine, I am sure he will not put forth his best effort as a student.

DR. WM. HANSEN, Minneapolis: I wish to compliment Dr. Zimmermann on his paper this evening. I believe it reëmphasizes the necessity of everyone being more attentive and interested in subjects concerning the medical profession, as he has presented.

DR. ZIMMERMANN, in closing: I think as individuals, if we feel like writing to our Congressmen, it is all right to do so; but, as organized medicine, we will weaken our position if we do that as a group. The Academy of Medicine or groups of that kind will strengthen their position greatly if they keep out of politics entirely. I don't think we have so much to fear from socialized medicine. If it's coming, it's coming. But the thing we have to fear is the effect of regulated medicine on medical education and the standards of medicine.

I got a letter the other day from a friend in the army. He is in a hospital of 1,700 beds. They have the best medical treatment you could possibly imagine —excellent surgeons, medical men, research workers, pathologists, psychiatrists, dermatologists, neurologists, and every variety of specialist. All the diagnostic apparatus that could possibly be assembled in one institution was there. Soldiers are coming to these hospitals and they are going to enjoy facilities no other institutions in America can supply. That is the thing they are going to have handed to them. They are coming back and see our hospitals which haven't those things. The government is going to build huge institutions, and we are going to compete with them.

My thesis is that if we are going to compete with them we should run them. It can be done and we have the mechanisms for doing it. I think that in twenty years from now you will have found that you have butted your heads against a stone wall trying to protect organized medicine.

As individuals, we can do something. As individuals, by writing your Senators I think you will accomplish as much as members of Guilds or groups—and I think we can accomplish a great deal. This is a plea not for or against socialized medicine. Do what you can to defeat it. Also, organize yourselves in such a way that should it come—and you will have to admit there is grave danger—you would be better off running it than by having a group, such as Dr. Braasch mentioned, running medicine. If organized medicine ran it, it would be better than if it did not.

The meeting adjourned.

ERLING W. HANSEN, M.D.
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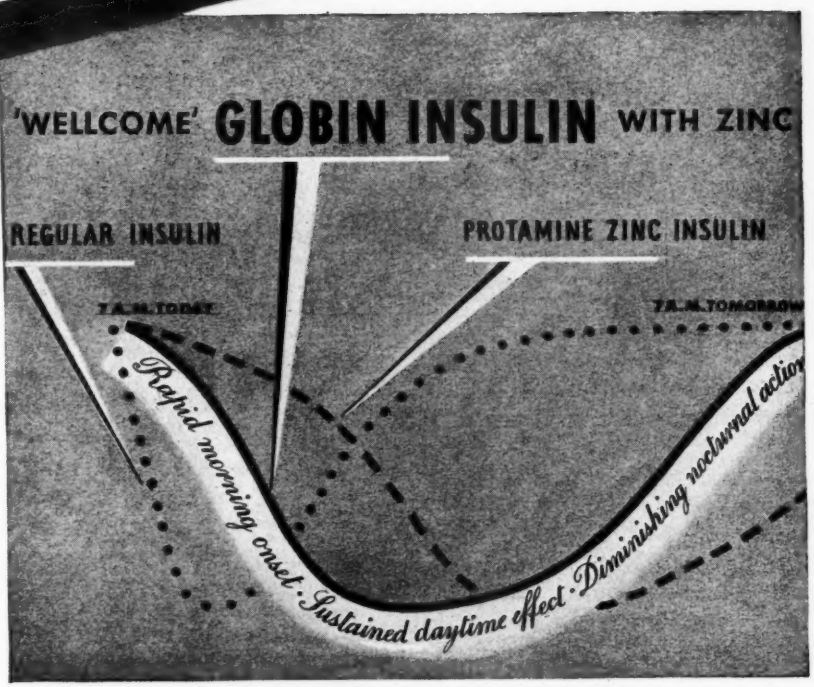
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✦ Reports and Announcements ✦

STATE MEETING

Arrangements are now complete, according to the Committee on Scientific Assembly, for the 91st Annual Meeting of the Minnesota State Medical Association, to be held at the Mayo Civic Auditorium in Rochester, Thursday, Friday and Saturday, April 13, 14 and 15.

Advance reports indicate that it will be one of the largest and most important meetings in the history of the association in spite of wartime difficulties and restrictions. Disapproval voiced by Washington for conventions does not apply to state medical meetings, according to the committee, because these meetings provide the only opportunity available to many busy physicians for essential postgraduate instruction.

A series of symposiums on ever-present problems of the general practitioner feature the program. Among them will be discussions by experts on the handling of peptic ulcer, on pre-operative and postoperative care for bad risk patients, on the new sulfa drugs and penicillin, on anesthesia and on maternal mortality. A carefully selected group of guest speakers will be present, also, including Vice Admiral Ross T. McIntire of the United States Navy. There will be a program of surgical clinics at Rochester hospitals and a series of lantern demonstrations on roentgenological diagnosis, as well as the usual scientific and technical exhibits.

Among out-of-state speakers scheduled to address the convention will be Dr. Ralph S. Bromer of Bryn Mawr, Pennsylvania, director of the X-ray Department of Bryn Mawr Hospital, who will give the annual Russell D. Carman Memorial Lecture in Radiology; Dr. R. M. Waters of Madison, Wisconsin, professor of anesthesia at the University of Wisconsin; Dr. Hugh McCulloch of St. Louis, Missouri, professor of clinical pediatrics at Washington University School of Medicine; Dr. H. T. Kretschmer of Chicago, president-elect of the American Medical Association; Dr. R. W. McNealy, Associate Professor of Surgery, Northwestern University, Chicago; and Dr. J. H. Moore, Chairman, North Dakota State Committee on Maternal Health, Grand Forks. North Dakota.

Other meeting events include eight Round-table Discussion Luncheons scheduled for Friday, April 14; an Open House for all convention visitors in the Auditorium Arena and Theater with a variety show at which the Olmsted-Houston-Fillmore-Dodge County Medical Society and the State Association will be hosts on Thursday night, April 13; and the annual banquet of the Association Friday night, April 14, at the Rochester State Hospital, at which President E. Mendelssohn Jones of Saint Paul and Vice Admiral McIntire will speak.

A luncheon meeting of the Class of 1906, University of Minnesota, will be held at the Hotel Arthur, Thursday, April 13, at 12:15 P. M.

All reservations for living accommodations for the meeting are in the hands of a special committee headed by Dr. A. M. Olsen of Rochester. All who desire reservations in Rochester during the meeting are urgently requested to ask for them immediately on the cards sent out to all members recently from the state office, or by letter.

Rooms have been set aside for meeting guests by all of the Rochester hotels and it is anticipated that these, together with other accommodations secured by the committee, will be sufficient. But reservations should be made promptly and in advance of the meeting dates. Also reservations should be made at an early date for all round-table luncheons and for the banquet, on the card which will reach all members by mail with the program before the meeting. In view of wartime food restrictions it will be difficult to take care of those who neglect to make their arrangements in advance.

SPRING CLINIC SCHEDULE

The Division of Social Welfare Bureau for Crippled Children announces the following Spring Clinic Schedule for 1944:

PLACE	DATE	COUNTIES INCLUDED
St. Cloud	March 25	Stearns, Benton, Sherburne
Worthington	April 15	Nobles, Jackson, Murray, Rock, Pipestone, Cottonwood
Thief River Falls	April 22	Pennington, Marshall, Red Lake, Roseau, Kittson
Austin	May 13	Mower, Freeborn, Steele, Dodge
Detroit Lakes	May 20	Becker, Clay.
Grand Rapids	May 27	Itasca, Koochiching, Cass.
Morris	June 3	Stevens, Pope, Douglas, Grant, Traverse, Bigstone.
Aitkin	June 10	Aitkin, Carleton, Pine, Mille Lacs, Kanabec.

MEDICAL BROADCAST FOR MARCH

The following radio schedule of talks on medical and dental subjects by William A. O'Brien, M.D., Director of Postgraduate Medical Education, University of Minnesota, is sponsored by the Minnesota State Medical Association, the Minnesota State Dental Association, Minnesota Hospital Association and University of Minnesota School of the Air:

March 11— 9:15 a.m.	(WCCO)	Bronchial Obstruction
March 11—11:30 a.m.	(WLB-KROC)	Medicine in the News
March 15—11:00 a.m.	(WLB)	Health of the Mind
March 18— 9:15 a.m.	(WCCO)	Foreign Bodies in Respiratory Passages
March 18—11:30 a.m.	(WLB-KROC)	Medicine in the News
March 22—11:00 a.m.	(WLB)	Healthful mental attitudes
March 25— 9:15 a.m.	(WCCO)	Thumb Sucking and the Teeth
March 25—11:30 a.m.	(WLB-KROC)	Medicine in the News
March 27— 4:30 p.m.	(WCCO)	Your Hospital in Wartime—the Volunteer
March 29—11:00 a.m.	(WLB)	Recreation and Rest

WASHINGTON COUNTY

The Washington County Medical Society held its regular meeting on February 8, 1944.

"Duodenal Ulcer" was the subject of a lecture given by Bernard Lanin, M.D., Instructor in Surgery, Medical Department, University of Minnesota. After the lecture, numerous questions were asked and answered. The balance of the evening was taken up by local matters and consideration of methods to fight the Wagner-Murray Bill.

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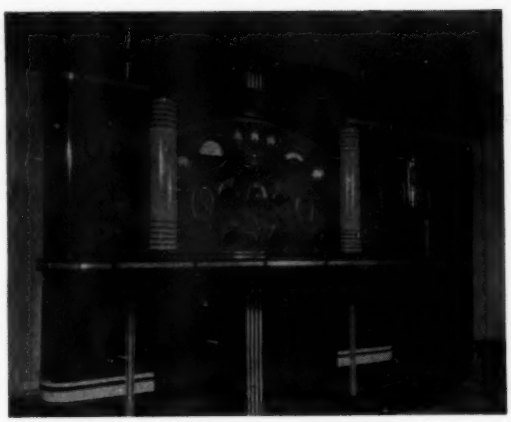

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Minneapolis, Minnesota

STATE BOARD MEETING

The Board of the Woman's Auxiliary to the Minnesota State Medical Association met at the Saint Paul Athletic Club, Friday, February 11. Mrs. F. S. McKinney presided, greeting state officers and the representatives of seventeen county groups who attended. Having recently attended a National Board Meeting in Chicago, Mrs. McKinney brought news from that organization and commended the Minnesota counties on their outstanding work for the Medical Surgical Relief Committee which surpassed the work done in any of the other states. She also stated that, according to the national edict, the chief work of every auxiliary member in the United States should be to present to the laity the true facts concerning the Wagner-Murray-Dingell Bill.

The president then asked for committee reports.

Mrs. Anthony Bianco, organization's chairman, reported that Kandiyohi-Swift-Meeker Counties had reorganized (not having functioned since 1937) and that a new auxiliary had been formed in Waseca County.

Mrs. Charles Bolsta, legislative chairman, and Mrs. H. W. Saterlee, public relations chairman, both have chosen to lend their efforts to the defeat of the Wagner-Murray-Dingell Bill, assuming that women's votes will be in the majority for some time to come.

Mrs. E. V. Goltz gave a very interesting description of the Saint Paul Cancer Hospital for indigent patients, and stressed their need for money, drugs and dressings. The latter are being made of discarded materials by county women and sent to the hospital.

Mrs. C. H. Sherman, Hygeia chairman, reported a gift of $240 from the State Medical Association and stated that 182 subscriptions had been placed in many worthy institutions.

Mrs. Asa Johnson, Bulletin chairman, reported sale of forty-one subscriptions, Austin alone having eight of these. This concluded committee reports and the county presidents submitted the following reports:

Waseca County

Organized January 4, 1944, the Waseca County Auxiliary has six members, 100 per cent of available doctor's wives. The Auxiliary has already launched the medical and surgical relief project and intends to make cancer dressings.

Kandiyohi-Swift-Meeker Counties

Reorganized in 1944, the Kandiyohi-Swift-Meeker Auxiliary has eight active members doing Red Cross work.

Washington County

Seven meetings have been held this year. War Services being their special effort, medical and surgical supplies have been gathered and a cadet nursing chairman has been appointed to approach high school girls regarding nurse's training.

Upper Mississippi

The president reported that they have been unable to hold many meetings because of the great distances to travel. Much interest has been shown in the Medical and Surgical Relief project and the T. B. Essay Contest, a local winner having read his essay at their last meeting.

Redwood-Brown Counties

Redwood-Brown counties have eighteen members, seven of which have husbands in the service. Their main activities are Red Cross, sewing, victory aid work, home nursing classes and medical and surgical relief collections.

Ramsey County

Ramsey has twelve new members. The group pays all state and national dues for service doctors' wives, places several *Hygeia* subscriptions, stresses war services and intends to make their public relations meeting the year's highlight, inviting all city organization presidents.

Park Region

The Park Region Auxiliary has had two meetings this year and has admitted four new members. The Auxiliary is assisting in the emergency nursing committee and in the medical and surgical relief committee.

Olmstead-Houston-Fillmore-Dodge Counties

Mrs. Henderson urged all persons wishing to attend the state convention in April to make reservations early as space was at a premium in Rochester.

Hennepin County

Mrs. H. F. Wahlquist reported plans being made for a Public Health Institute to be held in March. Dr. William O'Brien is assisting with arrangements and all city club and union presidents will be invited.

Mrs. Eben Carey, National Auxiliary President, was entertained at a Tea in Minneapolis, February 4, at which time she urged each doctor's wife to appoint herself a committee of one to carry the facts of the Wagner-Murray-Dingell Bill to groups and clubs of the laity.

Stearns-Benton Counties

Chief activities have been the Cadet Nursing Plan and the making of layettes for needy mothers. The sum of fifty dollars was donated to the Saint Cloud Hospital and five dollar prizes to the first ten T. B. Essay winners. Saint Cloud won eighth place.

Southwestern Minnesota

The Southwestern group of counties is considering sub-dividing as distances are too great and members too isolated to coöperate.

Scott-Carver Counties

The last meeting was held February 8, at which time a great many articles were brought in from New

A W O L

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Prague and Belle Plaine for the Medical and Surgical Relief Committee. Chairmen also reported they have approached all graduating classes regarding Cadet Nursing Corps.

Saint Louis County

There has been excellent attendance at all meetings, the most outstanding being a round-table discussion of the Murray-Dingell Bill at which Dr. Coventry of the A.M.A. Board spoke. Chief projects of the year have been Red Cross, Nutrition and Child Care of Working Mothers.

A Duluth radio station commentator said that the Saint Louis County Medical Auxiliary was one of the most active and worth-while groups of women in the state, of which they are duly proud.

Blue Earth County

Mrs. Sohmer, president, reported her group had met each month and a special effort had been made to secure supplies and make dressings for the Cancer Hospital in Saint Paul.

A very keen interest has been displayed in the medical and surgical supply collection and all members have helped in the nurse recruitment program.

CLINICAL-PATHOLOGICAL CONFERENCE
St. Luke's Hospital—Duluth

(Continued from Page 202)

in vain to pass a rubber catheter into the trachea but the patient died.

DR. A. H. WELLS: At necropsy this patient was found to have been asphyxiated by collapse of the trachea as the result of venous hemorrhage into the neck tissues. There was extensive degeneration and hemorrhage in the periportal areas of the liver.

We are continuing our investigation of the problem of hemorrhage complicating toxemia of pregnancy. It is necessary to measure all the various blood clotting elements including prothrombin, fibrinogen, platelet count and function, blood cotting time and capillary fragility during life before we can arrive at an acceptable conclusion.

Anatomical Diagnosis.—(1) Immediate postpartum status; (2) toxemia of pregnancy; (3) toxic changes in liver, heart, spleen and kidneys; (4) uterine exsanguination.

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In Memoriam

F. F. CLIFFORD

Dr. F. F. Clifford of West Concord, Minnesota, died December 30, 1943, at the age of eighty.

Dr. Clifford, a pioneer doctor of Dodge County, was born October 1, 1863, near Cannon Falls, Minnesota. He attended the Cannon Falls High School and taught in the rural schools of Goodhue County. Later he decided to study medicine and obtained his M.D. from the University of Iowa Medical School in 1885. He began practice at Le Center, Minnesota, but in 1892 moved to West Concord.

Dr. Clifford married Lillian Devan on May 1, 1894. His wife and two daughters, Mrs. Bert Johnson of Fulda and Mrs. Lloyd Amundsen of Rochester, survive him.

Dr. Clifford practiced continuously in West Concord until six years ago when he retired from practice, and for the past two years has been living with his daughter in Rochester. He was a member of the Olmstead-Houston-Fillmore-Dodge County Society, the Minnesota State, and American Medical Associations, and was active in community affairs as Mayor, Councilman, member of the school board, and also as postmaster. Although confirmed in the Episcopal church, he attended the local Methodist church, and in 1905 donated the site of the present Methodist church. He was really one of the pioneers in the practice of medicine in Minnesota.

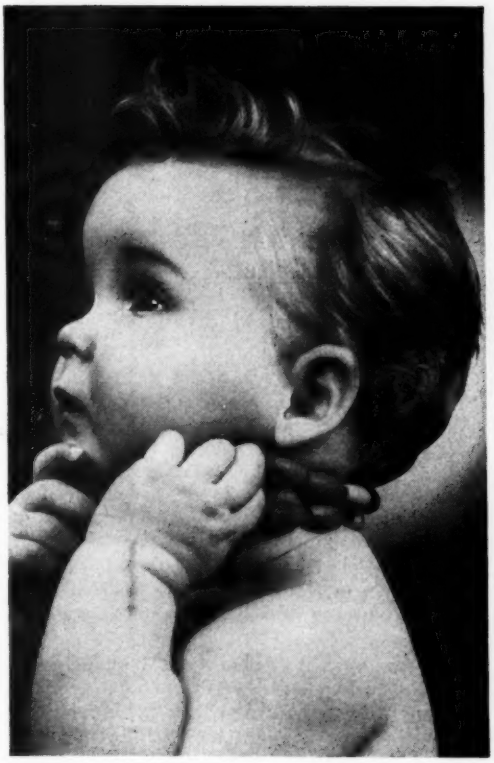
LEWIS M. DANIEL

Lewis Morgan Daniel, Minneapolis, died November 21, 1943, in Pompano, Florida, where he was visiting friends. Dr. Daniel was born October 11, 1894, in Minneapolis, and attended West High School and the University of Minnesota where he was graduated from the School of Medicine, Class of 1923. He served his internship at Minneapolis General Hospital. His collegiate work was interrupted by service in World War I during which he served overseas as a Lieutenant, Army Sanitary Corps, attached to Camp Hospital No. 68.

Dr. Daniel elected to specialize in internal medicine and was a member of the Minnesota Society of Internal Medicine. In college, he was a member of Alpha Delta Phi, academic fraternity, and Nu Sigma Nu. Dr. Daniel taught in the Medical School from 1925 to 1930. At the time of his death, he was a member of the staffs of Abbott, Northwestern and St. Mary's Hospitals. He also was a member of the Minnesota Pathological Society.

When *The Bulletin of the Hennepin County Medical Society* was launched in 1930, Dr. Daniel was chosen its first editor, serving until 1935 when Dr. Gilbert Cottam took over this duty. Subsequently he was an associate editor for five years and also served his Society as secretary-treasurer from 1938 to 1943.

Possessed of a delightful gift for humor, Dr. Daniel



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enlivened *The Bulletin's* pages with a wit seldom found in medical publications. The most prosaic proceedings or dull reports were likely to be spiced with his delicate touches, a felicitous phrase or a deft thrust at some pompous personage which delighted his colleagues and contributed notably to the popularity of *The Bulletin*. With no apparent effort he dashed off his contributions with an ease and of a quality that would have been the envy of a Bert Leston Taylor or a Franklin P. Adams. Those who appreciated his flair for humor, his gift of phrase and his ability to turn out sparkling copy under pressure of time insisted that Dr. Daniel possessed the ability to have been a top-flight columnist had he elected newspaper work rather than medicine.

The Daniel wit made him a delightful companion and a person frequently drafted for toastmaster at class reunions and fraternity dinners. This sly humor was likely to find expression at the most unexpected moments and his close friends could recount many instances when dull, even solemn, occasions were made memorable by his clever quips.

Probably his best efforts were known only to his intimates. "Louie" took delight in writing whimsical stories and nonsense for his children, a Lewis Carroll type of thing which won his countless small friends and made him and his home their center of entertainment and genuine happiness. Always he brushed aside requests to see these stories with the remark these were merely for the children, hastily written and of no consequence. Scores of yesterday's children would protest such a modest appraisal.

Dr. Daniel had an astonishing capacity for work but he refused to permit the demands of an exacting profession to submerge his natural gaiety and a happy ability to see the lighter side of life. His personal charm was unusual but his colleagues will remember him more especially for his lively wit and the spontaniety of his repartee. They will delight in the memory of one who never succumbed to the drab demands of life, who, while doing his full share of work, found the time and created occasions for enjoying and refreshing his friends. His was a spark which always twinkled but never dulled. —J.H.B.

SIGFRED ENGH

Dr. Sigfred Engh, for many years a practitioner at Jackson, Minnesota, died December 14, 1943, at the age of fifty-eight. He had been incapacitated since March 31, 1941, when he sustained a stroke.

Sigfred Engh was born at Astoria, Oregon, on October 14, 1886. He graduated from St. Olaf College in 1909 with a B.S. degree and taught one year at Canton, South Dakota, before entering medical school at the University of Minnesota where he graduated in 1914.

After completing internship at the Minneapolis General Hospital, he established practice at White Rock, South Dakota, where he enlisted in the United States Army in the spring of 1917. He served nineteen months in the base hospital at St. Maxient, France, and was discharged with the rank of Captain.

From 1919 to 1928, he practiced at Cottonwood, Min-

(Continued on Page 232)

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nesota. Since that time he has been at Jackson, Minnesota, where he passed away after almost three years of illness.

On September 4, 1921, he married Melvina Lerstad of Cottonwood, Minnesota, who with two daughters, Beatrice and Carolyn, survives him. One son, James, preceded him in death.

His hobbies were golf, fishing and hunting and he took an active part in church and civic affairs. He was a member of the American Legion, Kiwanis, and Southwestern Minnesota Medical Society.

Dr. Sigfred Engh was buried with military honors at Jackson, Minnesota.

VERNE C. HUNT

Dr. Verne C. Hunt of Los Angeles, formerly head of a section in surgery at the Mayo Clinic, was shot and killed on December 13, 1943.

Dr. Hunt was born in LaPorte City, Iowa, May 10, 1888. After graduation from Iowa State University in 1911, he received his M.D. from Rush Medical College in 1913, and an M.S. in Surgery from the University of Minnesota in 1918. He served his internship at the Los Angeles County Hospital from July 1, 1913, to January 1, 1915, and became a fellow in surgery in the Mayo Foundation, April 1, 1915. He was appointed head of a section in surgery in the Mayo Clinic in January, 1919, and was associate professor of surgery in the Mayo Foundation. In June, 1930, he left the Clinic to practice in Los Angeles.

Dr. Hunt was one of the founders of the American Board of Surgery, a member of the Mayo Foundation chapter of Sigma Xi, and a member of the Board of Governors of the American College of Surgeons. He was also a member of the Western Surgical Association, the Western Branch of the American Urological Association, the American Medical Association, and Nu Sigma Nu.

WALTER RICHARD SCHMID

Dr. W. R. Schmid, Glencoe, Minnesota, died January 20, 1944, at his home at the age of sixty-five.

Dr. Schmid was born May 17, 1875, in Switzerland, but came to this country at an early age when his parents settled in Rochester, Minnesota. Here he attended the public schools and received his M.D. from the University of Minnesota Medical School in 1903. He began practice at Chisholm and was connected with the B. S. Adams Hospital at Hibbing. In 1917 he took over the practice of Dr. Merritt W. Wheeler in Glencoe, where he actively engaged in practice until a few months before his death.

In 1908 Dr. Schmid married Edith Chappuie of Faribault, who with two daughters, Mrs. Susan Russell of Rochester and Mrs. Ruth Indall of Iowa City, and a son, Dr. Robert Schmid, survive him. His son is at present a commissioned officer serving in the United States Medical Corps at Honolulu.

Dr. Schmid was universally loved and respected by a host of friends and acquaintances and as a practitioner enjoyed the confidence of the public.

EDWIN EVERETT WEBBER

Dr. Edwin Everett Webber, founder and head of the Webber Hospital in West Duluth, died January 17, 1944, at the age of sixty-three.

Dr. Webber was born July 4, 1880, in Saginaw, Michigan. He attended the University of Michigan and obtained his M.D. from Jefferson Medical College in Philadelphia in 1902.

Dr. Webber began practice in Grand Rapids, Michigan, from where he went to Denver, Colorado. In 1910, he located at Buhl, in 1913 moved to Chisholm, and eight years later moved to Proctor, Minnesota, to become chief surgeon for the Duluth, Mesabi, and Iron Range Railway and head of the hospital there. In 1926 he founded the Webber Hospital in West Duluth.

Dr. Webber was a member of the St. Louis County Medical Society, the Minnesota State and American Medical Associations and was a fellow of the American College of Surgeons. He was also a member of Euclid Lodge, A. F. and A. M., and the Duluth chapter of the Royal Arch Masons. He had served as president of the West Duluth Businessmen's Club and was a member of the Chamber of Commerce.

Dr. Webber is survived by his widow, two sons, Lt. Richard Webber, on duty with the U. S. Navy in the South Pacific, and Pvt. Theodore Webber, stationed with the Army at Santa Ana, California, and a daughter, Clara, of Alliance, Ohio.

ELIZABETH A. WOODWORTH, M.D.

Dr. Elizabeth A. Woodworth, chief bacteriologist for many years of the Minneapolis City Health Department and a pioneer woman physician of Minneapolis, died at the age of seventy after a brief illness on December 15, 1943.

Dr. Woodworth was the daughter of Stephen A. Woodworth and Annabelle Wheeler. She was born on a farm in Dunn County, Wisconsin, on October 29, 1864. She taught school there for some years, and after the family moved to Minneapolis she entered an early class in nursing at St. Barnabas Hospital. She found nursing so interesting that she matriculated a few years later in the University of Minnesota Medical School and received her medical degree in 1901 from the College of Physicians and Surgeons of Hamline University. She located in Minneapolis and was granted a license by examination the same year.

Shortly after she received her license to practice, Dr. Woodworth accepted a position as bacteriologist in the Minneapolis City Health Department. She was promoted to chief of the department in a few years and remained in that position until she retired a few years ago.

Always deeply interested in welfare work, Dr. Woodworth joined a group of Twin Cities women doctors active in social welfare work. Their organization was an outgrowth of similar service carried on by pioneer women physicians of Minneapolis and Saint Paul. Her interest spread, also, to state, national and international activities and she was a member of the Woman Suffrage Association, the Women Voters' League, the National Peace Society, the Foreign Policy Association, the Women's Rotary Club and the Business and Professional Women's Club. At various times she was honored by these clubs for constructive contributions to their work.

Dr. Woodworth was a member of the Hennepin County Medical Society, the Minnesota State and the American Medical Associations and was also a central figure in the American Medical Women's Association, having served at various times in nearly all official positions.

Surviving Dr. Woodworth are two sisters, Mrs. R. B. Luttgren of Berkeley, and Mrs. E. S. Hodgin of Los Angeles, California. —NELLIE BARSNESS, M.D.

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Of General Interest

Dr. E. A. Hackie of Hallock is now a Captain in the Army Medical Corps.

* * *

Lt. C. L. Cain, MC, USNR, of Saint Paul, has reported for duty at the Port of Seattle and has been assigned to service on an aircraft carrier.

* * *

Dr. and Mrs. D. Kalinoff of Stillwater are spending the winter in the Southwest and will visit their daughter in Arizona en route.

* * *

Dr. P. A. Mattison, member of the Winona Clinic staff, will report for duty and training at the Great Lakes Naval Training Station, March 13. He has the rank of Lieutenant Commander.

* * *

Dr. C. A. McKinlay, of Minneapolis, is president of the Asbury Hospital staff for the coming year. Officers serving with him are Dr. D. R. Hastings, vice president, and Dr. Charlotte Morrison, secretary-treasurer.

* *

Dr. Daniel W. Wheeler of Duluth has been promoted to Captain in the U. S. Naval Reserve medical corps, according to word received from the Puget Sound Navy Yard, Bremerton, Washington, where he is stationed.

* * *

Dr. W. M. McKechnie, who retired from the staff of the St. Peter State Hospital last October, has accepted a position with the state hospital at Winnebago, Wisconsin, where he took over his new duties in February.

* * *

For his work in research into the use of penicillin, Dr. Walter E. Herrell of the Mayo Clinic, Rochester, was awarded the Distinguished Service Key by the Junior Chamber of Commerce in Rochester for outstanding achievement in 1943.

* * *

Dr. Albert D. Corniea was elected chief of staff of St. Barnabas Hospital at the annual staff meeting in February. He succeeds Dr. W. B. Roberts. Dr. K. W. Wilder was elected vice chief of staff and Dr. L. A. Whitesell, secretary. Dr. E. J. Lillehei was elected to the executive staff. Dr. Roberts will serve on the executive staff as well.

Dr. O. D. Nelson of Wheaton was named president of the Board of Governors of Wheaton Community Hospital at the first meeting of the Board held late in January. The hospital was opened for patients early in February.

* * *

Dr. C. F. Carstens was named chief of staff of the Hibbing General Hospital at the close of the second year of service of the hospital in February. Dr. C. A. Raadquist was named vice chief, and Dr. F. W. Bachmik, secretary.

* * *

Dr. Lloyd L. Merriman of Duluth has been elected to succeed Dr. Russell J. Moe as chief of staff of St. Luke's Hospital for the coming year. Other officers elected are Dr. O. L. McHaffie, vice chief of staff, and Dr. Selma Mueller, secretary.

* * *

O. J. Hagen, A.M., M.D., L.L.D., F.A.C.S., of Moorhead, Minnesota, was elected Regent of District No. 13 and delegate to the National Assembly and a member of the Board of Governors of the International College of Surgeons at its meeting in Philadelphia, December 19, 1943.

* * *

Lt. Comm. Frederic F. Wipperman of Minneapolis has reported for duty with the Navy Bureau of Medicine and Surgery at Washington after eighteen months as flight surgeon on an aircraft carrier in Pacific war theaters. He has seen action from the Aleutians to the Southwest Pacific.

* * *

Dr. Richard Bardon of Duluth was elected chief of staff of St. Mary's Hospital at the annual meeting held in February. He succeeds Dr. F. N. Knapp. Dr. H. O. Hoff was chosen secretary of staff and Dr. J. R. McNutt was elected chief of staff-elect and will head the organization in 1945.

* * *

According to a recent report of Russian War Relief, Inc., nearly $17,000,000 worth of supplies were shipped to Russia in 1943. Seventy per cent of this was in the form of clothing, and over 20 per cent in medical and surgical supplies. This year the goal of $21,000,000 has been set, $9,000,000 of which will be allocated from the National War Fund.

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H. R. (Bill) Lambert, former representative of the W. F. Prior Company of Hagerstown, Maryland, and a resident of Minneapolis until September, 1939, is desirous of communicating with his friends in the medical profession of Minnesota who may be assigned to Australia. He can be contacted at the Office of the Quartermaster, Service Command B/S7, APO 927, San Francisco, California.

* * *

The community of Kelliher, Minnesota, may have a public hospital within the next ten years, if the amount of $10,000 left in a trust fund to the city by the late Lars A. Olson is used for a nucleus for raising additional funds for a hospital project within the period named. If the fund is not used in the building of a community hospital the amount of $10,000 is to be paid to the State of Minnesota for its use and benefit.

* * *

The marriage of Dr. S. Marx White and Mrs. Jewell Fuller of Minneapolis took place Saturday, January 25, at Mrs. Fuller's apartment. Dr. George P. Conger of the University of Minnesota, read the service. Dr. and Mrs. White left for a trip East, stopping at Wilmette, Illinois, where they visited Dr. White's son-in-law and daughter, Mr. and Mrs. James Coffield, Jr. They also visited the doctor's son and daughter-in-law, Major and Mrs. Asher White of Oak Ridge, Tennessee.

* * *

Dr. Oliver M. Porter has returned to Minnesota from Sisseton, North Dakota, where he has practiced his profession for the past several years. He has opened offices for the practice of medicine and surgery in Willmar, returning to the community near which he practiced in the early part of his career. He practiced at Atwater immediately following graduation from the University of Minnesota and was associated with the Nicollet Clinic in Minneapolis before going to North Dakota.

* * *

Dr. Paul Cress, who several months ago re-opened the Cress Hospital at Ellsworth, originally established by his father, Dr. P. J. Cress, has been called to active duty as a first lieutenant in the Marine Corps Medical Reserve. As the elder Dr. Cress is now located in California, the hospital may be closed again until such time as Dr. Paul Cress returns from the service.

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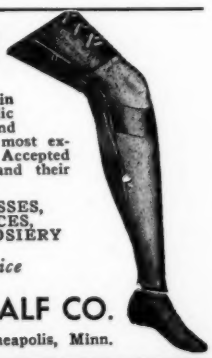

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

SYNOPSIS OF MATERIA MEDICA, TOXICOLOGY AND PHARMACOLOGY. Third Edition. Forrest Ramon Davison, B.A., M.Sc., Ph.D., M.B. Formerly Assistant Professor of Pharmacology, School of Medicine, University of Arkansas, Little Rock. Medical Department, Upjohn Co., Kalamazoo, Michigan. 759 pages. Illus. Price, $6.50, flexible binding. St. Louis: C. V. Mosby Co., 1944.

SYNOPSIS OF OBSTETRICS. Second Edition. Jennings C. Litzenberg, B.Sc., M.D., F.A.C.S. Professor Emeritus of Obstetrics and Gynecology, University of Minnesota Medical School, Minneapolis. 405 pages. Illus. Price, $5.00, flexible binding. St. Louis: C. V. Mosby Co., 1943.

HANDBOOK OF NUTRITION. Council on Foods and Nutrition of the American Medical Association. 586 pages. Illus. Price, $2.50, cloth. Chicago: American Medical Association, 1943.

STROPHANTHIN. Clinical and Experimental Experiences of the Past 25 Years. Brun Kisch, M.D. Formerly Professor on the Medical Faculty of Cologne University (Germany), Visiting Professor of the International University in Santander (Spain). Research Fellow at Yale University. 158 pages. Illus. Price, $4.00, cloth. New York: Brooklyn Medical Press, 1944.

ORAL PATHOLOGY: A Histological, Roentgenological, and Clinical Study of the Diseases of the Teeth, Jaws, and Mouth. Kurt H. Thoma, D.M.D. Professor of Oral Surgery and Brackett Professor of Oral Pathology, Harvard University; Oral Surgeon and Chief of Dental Service, Massachusetts General Hospital. 2nd ed. 1328 pages. Illus. Price, $15.00, cloth. St. Louis: C. V. Mosby Co., 1944.

Dr. Thoma has long enjoyed an enviable reputation as an author in medical and dental research. The second edition, with its numerous illustrations, many of which are in color, are the finest I have ever seen, having had quite a little experience in color photography myself.

His findings, diagnosis and treatments are written in the language we all understand.

To the men who have been doing oral surgery for many years, it is very refreshing to read and collaborate with the author on how we have handled parallel cases, and have had an opportunity to see our end results years later.

This edition, which has required so much time and effort to produce, should be in the library of everyone in all branches of the healing art.

E. D. BETTENHAUSEN, D.D.S.

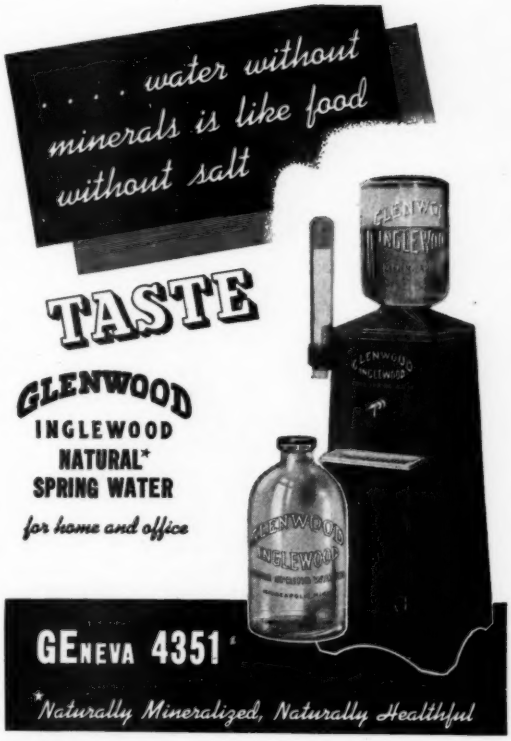
A PRIMER OF THE PREVENTION OF DEFORMITY IN CHILDHOOD. By Richard Beverly Raney, B.A., M.D., in collaboration with Alfred Rives Shands, Jr., B.A., M.D. Illustrated by Jack Wilson. 188 pages. Price $1.00. Elyria, Ohio: National Society for Crippled Children, Inc., 1941.

The first chapter treats of the definition and causes of the common affections of childhood which may cause deformity. The subsequent three chapters describe in regional order the most important deformities of childhood, with a discussion of their common causes and prevention. The nomenclature makes use of common and well-known terms, and the glossary and index furnish an accurate alphabetical reference. Eighty-eight figures comprise the informative illustrations. This primer has been written plainly and simply for the family doctors, the welfare workers, and the public health nurses and it should stimulate a new interest in the prevention and the treatment of the affections which cause crippling.

LILLIAN L. NYE, M.D.

MANAGEMENT OF THE SICK INFANT AND CHILD. By Langley Porter, B.S., M.D., M.R.C.S. (Eng.), L.R.C.P. (Lond.) and William E Carter, M.D. Sixth Revised Edition. 977 pages. Price $11.50. St. Louis: The C. V. Mosby Company, 1942.

The physician notes with much sentiment the dedication to the three generations of pediatricians. A warm welcome is given the inclusion of the "child" in addition to the "Management of the Sick Infant." This sixth edition embodies advancing knowledge in pediatrics and allied fields. It is a pleasure to note the list of



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those to whom the authors' thanks are extended. This book presents in a single volume exactly what you will want in the management of the sick young as well as the normal growing young. The chapters devoted to methods, formulas, recipes, and drugs are invaluable. The reviewer heartily recommends the book.

LILLIAN L. NYE, M.D.

CLINICAL LABORATORY METHODS AND DIAGNOSIS. R. B. H. Gradwohl, M.D., D.Sc., Director of Gradwohl School of Laboratory Technique; etc., Third edition. Two volumes (12 lbs.) 2230 pages. 726 illustrations. St. Louis, Mo.: C. V. Mosby Co., 1943. Price $20.00, cloth.

This work represents a noble attempt at collecting many of the better medical laboratory procedures (not including tissue diagnosis) under one title. The important sciences of chemistry, bacteriology, serology, and parasitology receive fairly good space while others such as mycology, toxicology and histologic technique are skimmed over. Similar peculiarities occur in the various specific fields; for instance, there are fifteen pages devoted to blood iodine and nine pages devoted to blood amylase but nothing can be found on blood lipase. Other omissions such as the pancreatic function test of Ägren, Lagerlöf and Bergulund or the measurement of sodium bicarbonate secretion of the pancreas are noted. Mistakes such as the statement on page 209, "In all cases of gout the uric acid is increased . . . ," are inexcusable.

The discussions of certain tests have a brief selection of authoritative references, and apparently are not intended to be complete. The omission of an evaluation of such tests as the colostrum skin test for pregnancy is bad. Why authors so often copy the dogmatic statements concerning the interpretation of the terms direct, biphasic and indirect van den Bergh reactions from one book to another without giving the unwary student a practical evaluation of the tests is beyond me. No attempt has been made by this reviewer to study the many laboratory procedures for errors in transcription.

In conclusion, this two-volume book can be recommended as a collection of most of the laboratory procedures now in general use. The chapter on parasitology derived mainly from Professor Pedro Kouri of the University of Havana deserves special mention.

ARTHUR H. WELLS, M.D.

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(Continued from Page 201)

amination appears to point more strongly to tuberculosis than does an uncomplicated spontaneous pneumothorax.

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